THE

SOUTHERN AGRICULTURIST.

JUNE, 1835.

PART I.

ORIGINAL COMMUNICATIONS.

A few hints for the improvement of our Agricultural Societies.

To the Editor of the Southern Agriculturist.

Dear Sir,—Colleton, in your March number, has attempted to point out some of the causes, which have led to the decline and fall of our Agricultural Societies. Conscious of the truth of his remarks, and with the hope, that his readers may profit by the sad experience of their reality, I shall attempt to present a few hints, which may serve as remedies to the evils of which he has so justly complained.

It appears to me, that the chief reason, why, our Agricultural Societies have not succeeded, is, because they are generally formed, without a due regard to the importance of the object, on the part of members. The success of all similar institutions depends upon the amount of exertion and talents, which each member affords. We should all bear this in mind—and I know of no more certain means of doing so, than by frequently putting to ourselves individually, the two following questions.

1st. What is the Science, in which I have embarked?

2d. How am I to attain in it, the greatest share of information?

The first of these questions, no one, who pretends to the name of planter, should neglect. As such, he should

learn that agriculture is, indeed, a Science, and not a mere slavish labour—that it requires the exercise of mind and a discriminating understanding. He should feel, that it is ancient in its origin, honourable in its pursuits, and vastly important in its general results to the world. To be convinced that this is no flourish of words; let any planter in calm reflection, carry his mind over the subject. What a field for thought! Spread out before him is the earth, with its chemical and geological history—the various vegetable substances, which take life from its bosom, with their botanical classification. Next come, the application of labour to these, involving the Science of mechanics—the production of this labour, as afforded in the fruits of the soil; then the price which those fruits yield—the life given to commerce by their demand and consumption—the interchange and civilization produced by a commerce so carried on—all connected, as they necessarily are, convince, that the Science, when thus considered, is a dignified and important one. Few of us, however, look at it in this light. Year after year we dig the soil—we plant our seed, reap our fruit, prepare and send it to market, and are content if we are not cheated out of our pay. Other years follow; we do the same, and with a sluggish content spin out the tedium of our days. With a view to improving this state of things, we, perhaps, form Agricultural Societies. We regularly attend their meetings—dispute for hours upon what, we at last discovered we all agree, and depart without adding one item to our previous information.

For all this, reformation is certainly needed. Permit me, then, to present for the consideration of our Societies, a plan which my own experience has taught me, to be both practical and easy.

As a leading proposition, it will be readily admitted, that agriculture as a Science, has certain fixed and immutable principles. This being unavoidably granted, I would suggest, as a primary consideration, that our members should adopt some elementary work, as a text book, by which to direct their various experiments. I mean by this, that some simple and well arranged work should be agreed upon, from which each member might learn the definictions of the several terms applicable to the Science.—the mode of ditinguishing one soil from another—their natures, and the manures applicable to them. These

constitute, what are termed, the principles of the Science; and are as unwavering in their results, as the magnet in its attraction to the Northern pole. They form, in fact, the very soul of the Science; being a kind of centre from which all minor experiments spring. Let us, for example, take up Sir Humphrey Davy's Agricultural Chemistry, Kirwan's Manual, or any similar work—let the general terms of the Science be studied from them. If any member conceives them to be incorrect, let them be discussed before the Society, and if necessary, let others be substituted. At all events, I would have some general truths, which we might all consider as established; and not spend our whole time, as it is too often the case, in acquiring rudiments, when we should be progressing in the higher branches of the Science. Let me explain my remarks upon this head. I have a piece of soil before me. Experience, or scientific examination has taught me, that it is too sandy. I have learnt that salt will give it moisture and adhesiveness; and I at once apply the remedy in marsh-mud immediately contiguous. Another field is, perhaps, too cold and sour, and I have the remedy at hand, in the myriad of shells scattered all around me. These are familiar examples, but they tend forcibly to shew the advantages of the system I propose. Without a knowledge of the simple principles which those experiments involve, I may have tried for years one application after another, until I had ruined both myself and my lands. But by understanding them properly—and a few day's study will enable every one to do so—I save time, labour and mortification.

Having acquired these elementary principles of the Science, I would next suggest, that the Society divide its meetings into what may be called terms or seasons. Suppose, for instance, we commence with January. At the meeting for this month, let the duties and labours for the next be stated. Having done so, let each member say for what crop he is about preparing—in what land he contemplates setting it—whether he considers such land too high or low, too wet or too dry—if either, what remedy he intends applying. Each member can then give his experience upon the subject, and thus, the individual seeking information, will be benefited at a time when his situation actually demands it. This plan I would practice throughout the entire year—allotting to each month,

the discussion of such topics, as the labours to be accomplished in it, may require. If a new tool, machine, or any utensil, appertaining to agriculture, has been newly invented, I would have it described, and if possible, exhibited to the members, at such a proper season, that each might have time to give it a trial. By such a course, it appears to me, that much time might be saved, which is otherwise thrown away.

While the subject is fresh upon the mind, and its originality pleases, and while the very demands of the season invite to its trial, few will be found, who will not derive advantage from its bare suggestion. As an illustration, suppose it the season for cotton-planting. Previous to our meeting for this season, let each member, if he has not done so before, read over the history of the cotton-plant—its botanical classification—whether indigenous or exotic—if the latter, when introduced into this country and from whence—what changes it has undergone, by a transmutation of climate and soil—how affected by each—its diseases—the characteristic marks of those diseases—together with the most certain remedies for the same. Next, its preparation for market—the different machines for thus preparing it, and so on, until the whole history of the plant, with all the labour connected with its growth, cultivation and product, is fully acquired. If this information cannot be had from books, there are hundreds of our planters, whose own reading and experience, enable them to impart it; and I am confident, that it is only to ask for the information, when it will be given upon almost every subject, fully, clearly and willingly.

It is possible, that at such meetings, our members, as is too often the case, will conceive that no one of them is individually called upon to speak upon, or even to present, the subject for discussion. To obviate this false delicacy, an esteemed friend* has proposed a plan, which from having seen it tried in other scientific institutions, I feel the fullest confidence, will answer for our Agricultural Societies. He suggests, that a Committee be appointed by the Society to consider, and to report upon such subjects as might be submitted to their consideration. Upon their report being made, each member may add such remarks, or put such questions as he may deem necessary.

* Whitemarsh B. Seabrook, Esq.

The object of this plan, is simply to break the ice, for once the subject is presented, each member will find enough to say —much more, indeed, than he had any idea of.

One more suggestion and I shall have finished this communication. At our meetings, I would have our members converse as in any other polite circle, and not wrangle in angry disputation. Your long and set speeches, seldom do more good than to exert the lungs of the speaker, and tire out the ears of the listener. They exhibit, in most instances, the author more than his subject—the chief object being to say more fine things than true ones. Let each member persuade himself that his occupation is honourable and important—that truth and usefulness is his purpose; and if he have any thing to impart which will advance either, let him do so, in such a manner as will allow others to question, to sanction, or to reject, as experience and reason might dictate.

With the hope, Mr. Editor, that this communication may at least awaken inquiry, and perhaps, lead to reform in our Societies.

I remain with diffidence and respect

B. R. CARROLL.

Charleston, May 5th, 1835.

Florida Coffee, same as Horse Indigo, (Baptisia Tinctoria.)

Orangeburgh District, April 25th, 1835.

To the Editor of the Southern Agriculturist.

Dear Sir,—There is a weed which grows in this District, and I have no doubt in many parts of the State, called the *Horse Indigo,** which has always been considered worthless, and very hard to get rid of, but I would advise those who have it about them, (and wish to drink *Florida Coffee*) to save the seed of it, as I believe it to be precisely the same thing. I have planted some of the Florida Coffee, and find it comes up just like the Horse Indigo. I have also compared the seed, and can see no difference at all, and the description given in the *Agriculturist* of the Florida Coffee, is exactly the same of that of the Horse Indigo.

Respectfully, yours,

DONALD B. JONES.

* Known in Beaufort, S. C. as the *Stinking Weed*, which overruns the city in the summer. The seed of both are in our possession for examination.—*Ed.*

Catalogue of Phænogamous Plants and Ferns, native or naturalized, found growing in the vicinity of Charleston, (S. C.); by J. BACHMAN.

(Continued from page 196.)

Liliodendron tulipifera *L*
Lithospermum arvense *L*
Lobelia amœna *Mich.*
" cardinalis *L*
" claytonia *Mich.*
" glandulosa, *Walt.*
" kalmii *L*
" puberula *Mich.*
Ludwigia alata *Ell.*
" alternifolia *L*
" decurrens *Walt.*
" lanceolata *Ell.*
" linearis *Walt.*
" microcarpa *Mich.*
" mollis *Mich.*
" palustris *Ell.*
" pedunculosa *Mich.*
" sphærocarpa *Ell.*
" virgata *Mich.*
Lupinus
" diffusus *Nutt.*
" perennis *L*
" villosus *L*
Lycium carolinianum *Walt.*
Lycopodium carolinianum *L*
Lycopus angustifolius *Ell.*
" virginicus *L*
Lyonia martima *Ell.*
Lysimachia quadriflora *Sims.*
Lythrum alatum *Pursh.*
" lanceolatum *Ell.*
" lineare *Mich.*

M.

Magnolia glauca *L*
" grandiflora *L*
Malaxis liliifolia *L*
" ophioglossoides *Muhl.*
Malva caroliniana *L*
" rotundifolia *L*
Mariscus cylindricus *Ell.*
Mariscus echinatus *Ell.*
" retrofractus *Ell.*
Manisuris granularis *L*
Marrubium vulgare *L*
Marshallia lanceolata *Mich.*
Martynia proboscidea *L*
Medicago intertexta *L*
" lupulina *L*
" nigra *L*
Melananthera hastata *Mich.*
Melia azedarach *L*
Melica glabra *Mich.*
Melilotus officinalis *Pursh.*
Melothria pendula *L*
Menispermum smilacinum *D' Can*
Mentha tenuis *Mich.*
Micranthemum orbiculatum *Mich.*
Milium paspalodes *Ell.*
Mikania pubescens *Muhl.*
" scandens *L*
Mimulus alatus *L*
" ringens *L*
Mitchella repens *L*
Mollugo veticillata *Walt.*
Monarda punctata *L*
Monocera aromatica *Ell.*
Monotropa morisoniana *Mich.*
Morus alba *L*
" rubra *L*
Muhlenbergia diffusa *Ell.*
Myrica cerifera *L*
Myriophyllum heterophyllum *Mich.*
" scrabratum *Mich.*
" verticillatum *L*

N.

Neottia cernua *L*
(Spiranthes)
" tortilis *L*
Nepeta cataria *L*

Nymphœa odorata *Pursh.*
Nyssa aquatica *L*
" uniflora *Walt.*

O.

Obolaria virginica *L*
Œnothera biennis *Mich.*
" grandiflora *Pursh.*
" muricata *Pursh.*
" pumila *Pursh.*
" sinuata *L*
Olea americana *Walt.*
Onoclea sensibilis *L*
Onosmodium hispidsum *Mich.*
Ophioglossum bulbosum *Mich.*
Ophiorrhiza lanceolata *Ell.*
" mitreola *L*
Orchis blephariglottis *Wild.*
" ciliaris *L*
" cristata *Mich.*
" flava *L*
Orobanche americana *L*
" virginiana *L*
Orontuim aquaticum *Mich.*
Osmunda cinamomea *L*
" spectabilis *W.*
Oxalis corniculata *L*
" recurva *Ell.*
" stricta *L*
" violacea *L*

P.

Panicum amarum *Ell.*
" anceps *Mich.*
" angustifolium *Ell.*
" barbulatum *Mich.*
" ciliatum *Ell.*
" debile *Ell.*
" dichotomum *L*
" divergens *Muhl.*
" crusgalli *Mich.*
" geniculatum *Muhl.*
" gibbum *Ell.*
" glaucum *Mich.*
(Setaria glauca)
" hians *Ell.*
" hirtellum *Mich.*
(Orthopogon hirtellum)
Panicum italicum *Walt.*
(Setaria)
" lævigatum *Muhl.*
(Setaria)
" microcarpon *Muhl.*
" multiflorum *Ell.*
" nervosum *Muhl.*
" nitidum *La Marck.*
" pubescens *La Marck.*
" scoparium *La Marck.*
" strigosum *Muhl.*
" villosum *Ell.*
" virgatum *L*
" Walteri *Ell.*
Parietaria floridana *Nutt.*
Paspalum ciliatifolium *Mich.*
" dasyphyllum *Ell.*
" debile *Mich.*
" distichum *L*
" floridanum *Mich.*
" læve *Mich.*
" præcox *Walt.*
" purpurascens, *Ell.*
" setaceum *Mich.*
Penthorum sedoides *L*
Pentstemon lævigatum *L*
" pubescens *L*
Phalaris americaua *Ell.*
Philadelphus grandiflorus *L*
Phleum pratense *L*
Phlox glaberrima *L*
" maculata *L*
Phryma leptostachia *L*
Physalis lanceolata *Mich.*
" pennsylvanica L
" pruinosa *L*
" viscosa *L*
Phyllanthus carolinensis *Watt.*
Phytolacca decandra *L*
Pinckneya pubens *Mich.*
Pinguicula elatior *Mich.*
" lutea *Walt.*
Pinus
"
" palustris L
" rigida *L*

Pinus serotina *Mich.*
" tada *L*
" variabilis *L*
Platanus occidentalis *L*
Plantago lanceolata *Pursh.*
" major *Pursh.*
" virginica *Mich.*
Poa angustifolia *L*
" capillaris *L*
" hirsuta *Mich.*
" nitida *Ell.*
" quinquefida *Pursh.*
" refracta *Muhl.*
" rigida *Ell.*
" tenella *L*
" viridis *Muhl.*
Podophyllum peltatum *L.*
Pogonia divaricata *Nutt.*
" ophioglossoides *Nutt.*
Podostigma pubescens *Ell.*
Polygala corymbosa *Mich.*
" incarnata *L*
" lutea *L*
" polygama *Walt.*
" pubescens *Muhl.*
" ramosa *Ell.*
" sanguinea *L*
" verticillata *L*
" viridescens *Nutt.*
(— nana) *D'Candole.*
Polycarpon tetraphyllum *L*
Polygonum arifolium *L*
" aviculare *L*
" convolvulus *L*
" hirsutum *Walt.*
" maritimum *L*
" mite *Per.*
" orientale *Pursh.*
" punctatum *Ell.*
" scandens *L*
" tenue *Mich.*
" virginianum *L*
Polypodium hexagonohterum *Mich*
" phegopteris *L*
" vulgare. *L*
Polypremum procumbens *L*
Polymnia canadensis *L*
" uvedalia *L*
Pontederia cordata *Walt.*
Populus angulata *L*
Portulacca oleracea *Walt.*
Potomageton heterophyllum *L*
Potentilla canadensis *L*
" norwegica *L*
Prenanthes alba *L*
" rubicunda *L*
" vrigata *Mich.*
Proserpinaca palustris *L*
" pectinata *La Marck.*
Prunus caroliniana *L*
" chicasa *Mich.*
" hyemalis *Mich.*
" maritima *Pursh.*
" virginiana *L*
Ptelea trifoliata *L*
Pteris atropurpurea *L*
" aquilina *L*
" caudata *L*
Pyrus coronaria *Pursh.*

Q.

Quercus alba *L*
" aquatica *Walt.*
" catesbaei *Mich.*
" falcata *Mich.*
" laurifolia *Mich.*
" lyrata *Walt.*
" maritima *Wild.*
" nana *Wild.*
" obtusiloba *Mich.*
" phellos *L*
" prinus *L*
" pumilla *Walt.*
" rubra *L*
" virens *Aiton.*

R.

Ranunculus abortivus *L*
" carolinianus *D'Can.*
" hederaceus *L*
" hispidus *Mich.*
" muricatus *L*

Ranunculus pusillus *Pursh.*
" sceleratus *L*
Rhamnus carolinianus *Walt.*
" minutiflorus *Mich.*
Rhexia ciliosa *Mich.*
" glabella *Mich.*
" lutea *Walt.*
" mariana *L*
" virginica *L*
Robinia pseudacacia *L*
Rhus copallinum *Walt.*
" radicans *L*
" toxicodendron *L*
" vernix *L*
Rhynchospora caduca *Ell.*
" cymosa *Ell.*
" distans *Pursh.*
" inexpansa *Pursh.*
" glomerata *Vahl.*
" longirostris *Ell.*
" rariflora *Ell.*
" sparsa *Pursh.*
Rosa carolina *Ell.*
" laevigata *Mich.*
" lucida *L*
" setigera *Pursh.*
Rottboellia dimidiata *Mich.*
Rubia brownei *Mich.*
Rubus cuneifolius *Pursh.*
" flagellaris *Wild.*
" trivialis *Mich.*
" villosus *L*
Rudbeckia hirta *L*
Ruellia oblongifolia *Mich.*
" strepens *L*
Ruppia maritima *D'Candole.*
Sabal pumilla *Walt.*
Sabbatia angularis *Pursh.*
" brachiata *Ell.*
" calycosa *Mich.*
" corymbosa *Baldwin.*
" gracilis *Mich.*
Sagittaria graminea *Mich.*
" lancifolia *L*
" natans *Mich.*
" sagittifolia *Mich.*
Salicornia ambigua *Mich.*
" herbacea *L*
Salix nigra *L*
" tristis *Ait.*
Salvia claytoni *Ell.*
" coccinea *Mich.*
" lyrata *L*
Salsola caroliniana *Walt.*
" linearis *Ell.*
Sambucus canadensis *L*
Samolus valerandi *L*
Sanicula marilandica *L*
Sanguinaria canadensis *L*
Sapindus saponaria *L*
Sarothra gentianoides *L*
Saururus cernuus L
Sarracenia flava L
" purpurea L
" variolaris *Mich.*
Schoenus effusus *Swartz.*
Schrankia uncinata *Ell.*
Schwalbea americana L
Scirpus americanus *Per.*
" autumnalis L
" capillaceus *Mich.*
" capitatis L
" castaneus. *Mich.*
" ciliatifolius *Ell.*
" divaricatus *Ell.*
" geniculatus L
" lacustris L
" lineatus *Mich.*
" maritimus L
" minimus *Pursh.*
" mucronatus L
" palustris L
" quadrangulatus *Mich.*
" simplex *Ell.*
" spadiceus L
" tuberculatus *Mich.*
Sceleria hirtella *Mich.*
" pauciflora *Muhl.*
" reticulata *Mich.*
" triglomerata *Mich.*
" verticillata *Muhl.*
Scrophularia marylandica L

Scutellaria caroliniana *Pursh.*
" integrifolia L
" pilosa *Mich.*
Senecio hieracifolius L
" lobatus *Pers.*
Sesbania vesicaria *Jacq.*
(Glottidium floridanum) *Desu.*
Sesuvium pedunculatum *D' Cand.*
" pentandrum *Ell.*
Seymeria pectinata *Pursh.*
" tenuifolia *Pursh.*
Sida abutilon L
" gracilis *Ell.*
" hispida *Pursh.*
" rhombifolia L
" spinosa L
Siegesbeckia laciniata *Pers.*
Silene antirrhina L
" pennsylvanica *Mich.*
" virginiana L
Silphium asteriscus L
" compositum *Mich.*
" integrifoilum *Mich.*
Sison pusillum *Mich.*
Sium nodiflorum L
" tricuspidatum *Ell.*
Sisymbrium amphibium L
" canescens *Nutt.*
" nasturtium L
" walteri *Ell.*
Sisyrinchium bermudianum L
Smilax bona-nox L
" caduca L
" hastata *Wild.*
" herbacea L
" lanceolata L
" laurifolia L
" pseudo-china L
" pumila *Walt.*
" quadrangularis *Muhl.*
" ovata *Pursh.*
" rotundifolia L
" tamnoides L
" walteri *Pursh.*
Smyrnium cordatum *Walt.*
Solanum carolinense *Mich.*
Solanum mammosum *Pursh.*
" nigrum L
" virginianum *Pursh.*
Solidago arguta *Ait.*
" graminifolia *Eli.*
" limonifolia *Pers.*
" nemoralis *Ait.*
" retrorsa *Mich.*
" rigida L
" rugosa *Wild.*
" sempervirens L
" sqarrosa *Muhl.*
" tenuifolia *Pursh.*
" tortifolia *Ell.*
" villosa *Pursh.*
" virgata *Mich.*
Sonchus acuminatus *Wild.*
" carolinianus *Walt.*
" oleraceus L
Sparganium americanum *Nutt.*
Spartina glabra *Muhl.*
" juncea *Schreber.*
" polystachia *Ell.*
Spergula
" arvensis *Walt.*
" decumbens *Ell.*
Spermacoce diodina *Mich.*
" tenuior *Pursh.*
Spigelia marylandica *Walt.*
Stellaria pubera *Mich.*
Stipa avenacea *Walt.*
" capillaris *La Mark.*
Strophostyles peduncularis *Muhl.*
Styllingia sebifera L
" sylvatica L
Stylosanthes elatior L
Styrax glabrum *Ell.*
" leave *Walt.*

T.

Thalia dealbeta *Pursh.*
Tephrosia paucifolia *Nutt.*
" virginiana *Pursh.*
Tillandsia usneoides L
Tetragonotheca helinathoides *Wild*
Teucrium virginicum L
Thlaspi bursa pastoris L

Thuja occidentalis L
Thyrsanthus frutescens *Ell.*
Tilia laxiflora *Mich.*
" pubescens L
Tofieldia pubens *Mich.*
Tradescantia rosea *Mich.*
" virginica L
Tragia urens L
Trichodium laxiflorum *Mich.*
" perennans *Wait.*
Trichophorum cyperinum *Pers.*
Trichostema dichotoma L
" linearis *Walt.*
Trifolium carolinianum *Mich.*
" pratense L
" reflexum *Wild.*
" repens L
Triglochin triandrum *Mich.*
Trillium sessile L
Tripsacum dactyloides L
Tripterella cœrulea *Ell.*
Typha latifolia L

U.

Ulmus alata *Mich.*
" americana *Mich.*
Uniola graciis *Mich.*
" latifolia *Mich.*
" paniculata L
" spicata L
Urtica dioica L
" pumila L
" urens L
Utricularia gibba L
" inflata *Walt.*
" saccata *Le Conte.*
" setacea *Mich.*
Vaccinium arboreum *Marshall.*
" corymbosum L
" dumosum *Pursh.*
" frondosom L
" galezans *Mich.*
" nitidum *Pursh.*
" virgatum *Pursh.*
Verbascum blattaria *Smith.*
" thapsus *Walt.*
Verbena hastata L
" urticifolia L
Verbesina siegesbeckia *Mich.*
" sinuata *Ell.*
Vernonia altissima *Nutt.*
" noveboracensis *Wild.*
" oligophylla *Mich.*
" scaberrima *Nutt.*
" tomentosa *Ell.*
Veronica agrestis L
" arvensis *Walt.*
" peregrina *Mich.*
Viburnum dentatum L
" lævigatum *Pursh.*
" obovatum *Walt.*
" prunifolium *Walt.*
Vicia mitchelli *Ranifesque.*
" sativa *Walt.*
Villarsia trachysperma *Ell.*
Viola blanda *Pursh.*
" cucullata *Pursh.*
" palmata L
" primulifolia *Walt.*
" striata *Ell.*
Viscum verticillatum L
Vitis æstivalis *Mich.*
" cordifolia *Mich.*
" labrusca L
" rotundifolia *Mich.*

W.

Wendlandia populifolia L
Woodsia rufidula *Beck.*
Woodwardia onocleoides *W.*
" virginica *W.*

X.

Xanthium spinosum L
" strumarium L
Xyris flexuosa *Muhl.*
" brevifolia *Mich.*

Y.

Yucca aloifolia *Walt.*
" filamentosa L
" gloriosa L

Z.

Zanthoxylum tricarpum *Mich.*
Zapania lanceolata *Pursh.*
" nodiflora *Pursh.*
Zizyphus volubilis *Pursh.*
Zigadenus glaberrima *Mich.*

On Gypsum.

Charleston, May 1, 1835.

To the Editor of the Southern Agriculturist.

Mr. Editor,—I observed in the March number of the *Southern Agriculturist*, an inquiry by one of your Correspondents, relative to the use of gypsum as a manure in the Southern States, many years ago, when I first began to attend to agricultural subjects, this manure attracted my attention, as well on account of the great value attributed to it in the books, as the marvellous effects I had seen, which attended its use in the Northern and Middle States.

My first object was to find whether there was any authority for the use of it on soils, resembling those prevailing in our low country.

I then collated the statements you will find in the annexed paper, and supposing they might be useful, I published them in the almanac of Mr. Hoff of 1819. It will be observed that they establish the great efficacy of gypsum as a manure for light sandy soils. Precisely the kind of land, most common in the middle and lower districts of the more Southern States.

"TO THE PLANTERS OF SOUTH-CAROLINA.

The agriculture of South-Carolina, particularly of those portions called the middle and low country, has been retarded by two evils, the remedies for which, if discovered, have been neglected. Excepting swamp lands, the prevailing soils in these parts of the State, are sandy, light and gravelly—the natural growth of which is pine. These soils, always thirsty, are rendered less productive than similar soils in more Northern latitudes, by the high temperature of our atmosphere, and the droughts which usually prevail from the middle of May to the middle of July. To remedy the sterility of these soils, and to counteract the effects of a heated atmosphere, in dry seasons, are the ends we desire to accomplish. All lands are improved by being manured, but manuring in the usual way is so laborious and expensive, few undertake it, and those few are compelled to limit its use to small portions of their plantations. Our experience, therefore, proves, that it is not probable our country will improve unless some less laborious and expensive method for improving the soil,

be introduced. The object of this essay is to prove that the Plaster of Paris combines these advantages.

That the Plaster of Paris* suits sandy, thirsty and gravelly land, is now generally known in the Northern and Middle States, and it is of the first importance that this truth should be extensively circulated throughout this State. I will select a few authorities on this subject, from American publications. In the Farmer's Assistant, written by John Nicholson, Esq. of Herkimer County, in the State of New-York, published in Albany, 1814, page 133, the following observations are made on gypsum: "For all *light*, *hard* and *dry* soils, which are not too near the ocean, this is an exceeding cheap and valuable manure, and its use has tended greatly to equalize the respective value of soils, by enabling the farmer to render those which are light and sterile, almost as productive as those which are naturally rich. From one to two bushels is a sufficient dressing for an acre or more. It is excellent to apply to young plants of Indian corn, about one tea spoonfull to each hill. It is, perhaps, more or less a stimulant to every plant, except wheat or rye. In order, therefore, for the farmer to reap immediate benefit from this manure, on his poor fallow grounds, let him apply the gypsum to it early in the spring. The farmer should keep a due supply of this excellent manure, if his lands are suitable for it."

In Dickinson's View of Massachusetts, page 7, he observes—"That even the pine lands, by the use of the Gypsum or Plaster of Paris, are not unfrequently rendered fertile and productive." and in page 8, it is further stated—"Our agriculture (of Massachusetts) is in a progressive state, from the extensive use of Plaster of Paris, which is particularly suitable to our light lands."

In Nicholson's Farmer's Assistant, page 48, it is remarked—"That gypsum is also an *antidote to droughts*, and fortunately it suits those soils best which are most affected in this way.

* The genuine Plaster of Paris may be known by the following tests—when bit it does not grit between the teeth. It does not effervece in aquafortis, nor is it capable of producing fire from steel by attrition. When purchased in its rock state, it is prepared by being broken with a pestle or axe in small pieces. Then passed through a steel mill, or through a pair of small stones. The finer it is ground the better. Whatever the consumption may be, the supply will equal it. As the quarries of Nova-Scotia and Paris are inexhaustible.

In a work by Richard Peters, of Philadelphia, published as long ago as 1796, entitled *Agricultural Inquiries on Plaster of Paris*, it is stated, in page 12, by William West, of Darby Township, Delaware County—"That the soils most proper for the Plaster, are warm, kind and loamy."

Robert Frazer, of Westchester, states, page 14—"That high ground and sandy soils, are most proper for this manure."

Philip Price, of Chester County, page 18—"By the experiments and observations I have made, I find a high, warm, dry, gravelly or loamy soil, is much the best for Plaster of Paris; clay, cold, or low lying land, is seldom favourable to it."

John Curwin, of Montgomery County, states, page 34—"Dry loams are the best."

Edward Duffield, of Philadelphia County, states, page 45—"Sandy and light loams are the best."

Richard Peters, of Philadelphia County, states, page 70—"That light soils, dry and sandy, or loamy, are most improved by the gypsum."

These gentlemen were all practical farmers. To their names, many others might be added, but it would be unnecessary prolixity. In the few instances, where the Plaster of Paris has been tried in this State, the above observations have been fully confirmed. To such as may be disposed to make further inquiry, reference may be made to Rees' Cyclopædia, article Gypsum, the Essays of Arator, and the Pennsylvania Farmer, by J. Roberts.

These authorities, I think, prove that the Plaster of Paris is a manure particularly suitable for the light soils of this State. And that by its agency our extensive tracts of pine lands may be converted into fertile fields. The effects of this manure are wonderful; lands are made to produce double, treble, and even fourfold their usual quantities, as is above observed by Mr. Nicholson. The value of soils is equalized—poor land is rendered, in a few years, almost as productive as the most fertile. These effects are advancing throughout the Northern and Middle States, and if too great apathy does not prevail, I trust a few years will give the same fruitful aspect to this State.

The question which naturally arises, is whether the Plaster is a costly manure? It is highly gratifying to be able to give a most favourable answer to this question. It

can be purchased in Charleston at from $8 to 10 per ton. One ton, when pulverized, will make 25 bushels. And from 1 to 1½ bushels applied to an acre of Indian corn or cotton is sufficient. One bushel will produce as great effect as 20 single horse cart loads of marl bog or dung. That such cheap manure can be used by most men who choose, is evident. The oppulent planter in every neighbourhood should keep large supplies to assist his poor neighbours.

The droughts which affect our planters so injuriously are next to be considered. The following experiment will prove that the Plaister will support vegetation and give it vigour, even when suffering from want of rain: a half bushel of cotton-seed mixed with as much Plaister of Paris, was planted in light sandy soil, about the 16th of June last (1819): no rain fell for three weeks after, and many weeks had previously elapsed without any. The cotton, however, grew with such vigour as to be as high as that which was planted about the 18th of April, and superior in colour. Nicholson, as above quoted, observes, "Gypsum is an antidote of droughts and fortunately it suits the soils best which are most affected in this way." Richard Peters observes, page 84, of the book above mentioned, that "Whatever the cause, dew will remain on a part of a grass-field, plaistered an hour or two in the morning, after all moisture is evaporated from the part of the same field not plaistered. I have also frequently seen its effects in my garden beds, which if plaistered, will retain moisture in the dryest season, when there is not the least appearance of it on those beds whereon no plaister was strewed. If water be, according to an old* as well as modern opinion, *almost all in all* in the food of vegetables, the Plaister attracts or retains abundant supplies." Here then is the remedy for our thirsty soils, and for the effects of the droughts of May, June and July. Another important consideration occurs: as the Plaister hastens the growth of plants, cotton may be planted so late as to escape all danger of spring frosts, (lately so injurious) without its maturity being retarded. I will add one more reflection: it has been said Plaister of Paris does not succeed near the sea. This opinion has proved erroneous in so many instances, it should not deter any planter so situated from making the experiment. The

* Lord Bacon.

probability is that when it has failed near the sea, the soil was not suitable.

I have thus endeavoured to introduce this inestimable manure to the more general notice of my countrymen. If this means of increasing our comfort and wealth be neglected, we cast away a most invaluable gift of Providence."

Countenanced by so much experience, I then began to use it on corn and oats, and afterwards on cotton. The land I then cultivated was a sandy loam, much exhausted, and a considerable part in old grassy fields. Its situation fifty miles from the sea-shore, and above the influence of any salt air from the ocean. To the corn I applied it in about a table spoonful to each hill, when the plant was from six inches to one foot high; the oat seed was made wet and rolled in the plaster, until about the proportion of a bushel of it, to the quantity of seed necessary to plant an acre adhered to it. To the cotton-seed I applied it in the same manner. I did not make any notes at the time of the results, but from recollection in which, I cannot err much, they were as follows:—When the season was dry the corn was improved by it; in some stalks that I kept under my own eye, those plaistered outgrew others not plaistered one-third in height and made a yield in the same proportion. In very wet seasons, the difference was hardly observable. The oats were decidedly improved, so much so, that at a distance, the line of the parts plaistered, was very distinct, the growth and colour being much better than of the other parts, as was also the produce. Circumstances prevented me from trying it on cotton as early as these experiments were made, on the place I have mentioned; and the only trial I made there was decidedly successful. I did not plant until the last of May. This was not from choice, but from being pressed by other business. The crop, notwithstanding, turned out very well, and was exempt from the rot, by which the neighbourhood that year suffered; whether this was owing to the plaister, or to the late planting, I cannot pretend to determine with certainty; it is supposed that disease is produced by an insect that appears when the plant is sufficiently matured for its depredations; this conformity in time, my crop may have escaped. If this suggestion should be thought probable, it would be well to make a trial in reference to this point. Before I plant-

ed the short cotton again, I removed on the salts, and, as the opinion prevailed, that Gypsum was inefficacious near the ocean. I neglected its use. At this time I saw a number of acres of very good long staple cotton, on a place near the ship-yard, about three miles from the city, and situated immediately on Cooper-river, and consequently exposed to the full effects of salt air. The proprietor told me the whole was manured in the manner I have mentioned with Gypsum, which he procured ready ground from New-York; and he attributed the fine crop the place produced to it. I was not then planting cotton, but was induced to try it again on corn and oats, on a farm near by, and equally exposed to the salt air. I found in dry seasons the same advantages in this situation, that I had experienced fifty miles in the interior, especially on the oats. So far my experience extends, and although the trials were not very nicely made, they have convinced me that on high sandy land, in dry seasons, and even near the ocean, the Gypsum is a useful manure for corn, oats and cotton.

It is also a very cheap manure, at least, in this place. It cost the gentleman, I above referred to, who purchased it in New-York ready ground, three dollars a barrel, containing three bushels, or one dollar a bushel. I procured it much cheaper. A considerable quantity was then, and probably still is brought from Havre, I believe mostly for ballast. I gave for it six dollars a ton. A ton, when pulverized, made twenty-five bushels, and the cost was, therefore, 24 cents a bushel. A bushel, or one and a half bushel is enough for an acre, which renders it a very cheap manure, when the transportation does not add much to the price.

I many parts of the Northern States, the farmers find their account in wagoning it two hundred miles and more. Indeed, it is considered an indispensable article there, and they have mills for grinding it as fine as flour. I used to crush the rock, by pounding it with a sledge hammer, and then sifted it through a wire seive, returning the pieces and particles too large to pass, to be pounded over. The rock is soft, and this was not a work of much labour; but if it were used extensively, a pair of stones should be put up expressly to grind it. It would spoil stones used for grain, for that use any further, unless cleaned and picked over.

There has been much speculation on the manner this manure operates. Judge Peters, who I believe claimed the credit of having introduced it into general use in Pennsylvania, attributed the effects to its retention of humidity, having observed on a grass plat that on the parts sowed with Gypsum, the dew remained three or four hours later, than on the parts without it. It is a sulphate of lime, but has a direct contrary tendency to lime as a manure. Lime being useful to cold and wet, and Gypsum to hot and dry soils. It is probable, however, that it has other virtues besides keeping the soil damp. The presence of vegetable substances seems necessary to give it effect, which substances it may prepare for manure by decomposing them, and besides it may impart to the plant the ability to absorb more nourishment either from the air, or earth, or from both. It was Sir Humphrey Davy's opinion, that it forms a constituent part of some plants, as it was produced when such were analyzed. But the practice of the best farmers favours the opinion, that it should be used as an auxiliary and not alone. Hence it is chiefly applied with grass-crop to the improvement of the soil, especially with the red clover, which grows very luxuriantly when dressed with it, and is then ploughed in. This system has really produced astonishing results, lands formerly worth but little, have been increased in value fifty fold by it, and now the chief object is that the land should be level when it can be brought to any degree of fertility; often, indeed, to such a state, that I have been told the wheat grows too rank upon it. Before these great advantages were ascertained, low wet meadows were regarded as the most valuable parts of farms; they are now much neglected and chiefly used for pastures, while the uplands yield the hay crops. The richest mines of gold, could not have so enriched the communities by whom the Gypsum is used, as it has done—to say nothing of the superior blessings, that attend this method of obtaining wealth.

It was impossible to overlook these great benefits; and if the red clover could have been introduced here, no doubt this system would have long since extended to this section of the Union. But this was, and I fear still is, the insuperable difficulty. In some spots I have heard it has succeeded, I think in some places in Pendleton; this was but partial, and other attempts have failed. Even

as far North as Salem, in North-Carolina, it does not answer well. I was informed some years ago, while visiting the tract occupied by those judicious and thrifty people, the Moravians, that although it grew with them, it did not seed well, and that if cultivated, it would be necessary to import the seed every year. The white clover grows very well here, but gives too light a sward. Is there any other grass that could be substituted for the red clover? What a benefactor he would be who could find it. I mean a grass that could be made to grow so luxuriantly and at so small a cost as to fit it, for a system of improving the soil. The cow-pea has been used with advantage for this purpose, but it requires cultivation at a very busy season, and the return to the ground is comparatively light.

I am convinced that it is in this direction we should look for the means of improving our lands. The farm-yard collections of manure is too limited, as a resource for extensive fields, although worth all the labour and attention it is possible to bestow upon it. But when fields may be manured with almost as much facility as ploughed, how does the prospect of a successful agriculture expand, we may say how boundless does it become; and who does not see that on the introducing of such a system depends the means of averting our decay, and retaining our population.

Perhaps I should apologize for saying so much, when I had so few facts to communicate. It will at any rate shew my willingness to contribute the little information I have on a subject of such great importance to our section of this country. M.

On the Diseases of Trees, and methods of Cure.

To the Editor of the Southern Agriculturist.

WHEN it is observed of a tree, that it does not shoot forth, we are certain that it is either punctured to the liber or white bark, or that it is deficient in nourishment from the poverty of the earth, in which it is planted that will in time prove its destruction. The remedy is to lay bare the roots in the month of November, for three feet around the tree, and put in three or four baskets of well rotted cow manure; throw upon this three or four buckets of water to force the manure amongst the roots, after which fill up the hole with the same earth that was taken out of

it; the roots becoming refreshed, throw out new fibres, and the year after the tree will be seen shooting forth its green foliage again. If the summer is very dry you must throw two buckets of water around it from time to time. The winter following in trimming the trees, you must not leave as many branches as on those that have always been in good health. Trees of every description are cured in this manner.

Bad Soil.—Fruit trees accommodate themselves more to warm light earth than to that which is cold and wet.

Diseased Roots.—Frequently a tree, all of a sudden, after have thriven many years, will become weak and languid, this arises from the roots becoming rotten from having been planted too deep, from the many fibres, from humidity or otherwise. This is easily remedied by laying bare the roots in autumn, and cutting off such as are decayed, up to the sound wood.

Exhausted Earth.—If the tree languishes in its sound roots, the malady arises from the earth being too much exhausted. To reanimate it, remove the exhausted earth and replace it with new; afterwards throw around the foot of the tree two good baskets of cow manure, if the earth is warm, or that of the horse if it is cold, and when the time arrives to trim it, cut out the old wood. If it does not shoot forth well the succeeding year, it ought then to be dug up and thrown away.

To regenerate old Trees.—When you have in your garden a very old tree, whose branches on the right and left indicate dying, you may calculate the cause to be in the roots, it wants nourishment, and the earth about its feet is too old, exhausted and dry. To give it again health and vigour, lay bare the roots in the month of November, for four feet square all around them so as not to injure them; afterwards throw five or six baskets of well rotted cow manure above the roots, the fall and winter rains will decompose it; if the winter is dry, you must water it, in order that the liquor of the manure may become a kind of pus to nourish the roots; the sap will begin to flow, and the earth and tree revive. In the month of February, cut the old branches to the body of the tree, covering the wound so as to prevent either rain or the sun from doing any injury. After the first year, the branches will be three feet; and, if it is a tree which ought to be trim-

med, the winter after trim the branches a foot long. This manner of resuscitating all kinds of trees is excellent.

Trees diseased on one side only.—If a tree is diseased on one side and vigorous on the other, lay the roots entirely bare, remove the diseased part, and cut the larger roots in order to make the tree equal, and the circulation of the sap more general; put new earth above the roots, even if they should not be unhealthy, and two or three baskets of manure as above.

When you trim this tree, leave the vigorous side long, and you must leave all the fruit branches, even the weakest, so as to draw the sap, trim very close the diseased side; cut off all useless branches, and leave a few fruit branches.

Yellow Leaves.—This disease arises often from the same cause as that of the disease last spoken of, that is to say, exhausted earth. In such case administer new earth mixed with manure reduced nearly to that of common earth; or, without entirely uncovering the roots, with ashes and soot. these materials are very good for light earths. When the ground is cold pigeon dung is very good, particularly where it has been in a heap for two years to ameliorate its strong heat; spread it an inch deep about the foot of the tree, and in the month of March following bury it. For the want of this dung, you must take away the old earth from around the tree and replace it with new, mixed with fine well rotted horse manure. If the yellowness arises from the earth being damp, take horse-dung mixed with water, so as to form a kind of pap, make a trench around the foot of the tree, pour in the mixture, cover it, and let it thus remain, it will reanimate it. If the yellow leaves arise from a contrary cause, that is, from the soil being too light and dry, you must as soon as the month of November arrives uncover the roots, and put above them the scrapings or settlings of a pool, well drained, worn out, and exhausted street mud; hog-dung or other similar manure, these simple and easy means will resuscitate them.

A tree often becomes yellow from having given too much fruit, and exhausting its substance. In this case you must pull off a part of the fruit and apply fresh nourishment to the roots.

When a tree appears to languish, make a circle around the foot of it, in which you must put any convenient ma-

nure; in trimming it, cut off all superfluous wood, and after having filled up the hole in which you have put the manure, leave nature to act, and she will resuscitate it soon. In digging around the tree, keep off at from two to four feet distance, observing as you approach the tree to dig carefully around the mound in which the roots are formed.

Sterility.—Open the earth about the foot of the tree, cut off the extremities of the large roots, shorten those that are too long or far off, and all the small ones near the trunk; throw good new earth upon them and cover them up.

Means to produce fruit from trees which flourish well, but whose fruit becomes blighted almost every year.—There are some trees which are charming to the sight when in blossom, but which retain none of their fruit, in this case, at least six buckets of water thrown around them when in full bloom, will answer a good purpose. If you have not so much water, you may refreshen the tree by sprinkling the buds. When the fall of the blossoms is in too great an abundance, bleed the tree or prune the roots.

Inertness of the Sap.—In very cold and dry summers in which there is not much rain, it happens that the sap ceases to flow by degrees. You will then see a great portion of the fruit, particularly peaches, which have the most need of a large stock of sap to acquire maturity, fall or prove abortive. The only remedy in this case is to open around the foot of the tree, and to throw in a bucket of water to open the pores and revive the sap, which will prove well that watering and vigilance are necessary in gardening.

When the spring is dry and cold, it happens often that a peach tree does not shed its blossoms, the flower attaching itself to the small nut of the peach, dries it up and makes it fall; to remedy this, you must bare the roots and throw in buckets of water, and when it is dried up, cover them again with earth, and continue watering them every week during the month of March and April, until you find the fruit safe and well grown; this raises the sap and saves the fruit; it is good to water freely peach and apricot trees during the great heat of summer, and above all, when the fruit is approaching to maturity. When the fruit is well grown, the tree must be thinned of those that are superabundant, which not only makes the fruit

grow larger but better, it also preserves the vigour of the tree, which would become ruined in two or three years, if you do not proportion the fruit to the strength of the tree. Peaches, nectarines, and apricots, must be thinned in May. Only a few fruit must be suffered to remain on the weak branches.

When the heat is great and a continual drought, at the end of July, and during the month of August, it is good to throw around the foot of the tree, and particularly the peach, a bucket or half bucket of water so as to rouse the sap and prevent the fruit from falling half ripe. When you observe the tree languish and the fruit advance very slowly and fall in great numbers, you may be sure it is in the sap, you must then put water to the foot of the tree, for which purpose you must make a trench around it at a short distance, so that the water may be better held, cover the earth with leaves or straw, and throw water on it, so as to enable the earth to preserve its freshness.

To give fruit a fine colour, about the end of June clip with a scissors those leaves that surround the fruit, and when they have grown nearly to their size, remove all their leaves from around them, so that the dew, rain and sun may penetrate, paying attention to the soil, the weather, and the strength of the fruit, for delicate fruit becomes scorched if laid bare too soon, and if too late will remain without colour and taste. Peaches and apricots should be laid bare only fifteen days previous to their being ripe, otherwise the fruit would become defective and imperfect about the stone. By jetting water with a syringe upon those fruit exposed to the sun two or three times a day, you will give them a peculiar and curious colour, but at the same time impair the quality.

When the severity of the heat occasions the fruit to fall, instead of watering, dig round the roots two inches deep, which fill up with the ashes of wood, and to prevent the wind from blowing it away, cover this ashes with earth.

Peaches and apricot trees are liable to what is termed the blight, which is an injury that shews itself by the leaves becoming crimped, shrivelled, dull and yellow, they fall about the first rain; you have nothing to do but first to remove all the blighted leaves, so that the new foliage of the succeeding spring by force of the sap of those which have been blighted, come quicker.

To remove gum you must with a proper instrument cut down to the inner part of the tree, and cover the wound with dry earth tied on with a cloth.

This is the general method of treating diseased trees in France, which from similarity of climate with that of this country, will apply here. Many persons believe it to be only necessary to plant a tree, and that nature will do all the rest. It is true, we must depend upon nature for the success of our endeavours; but we must recollect that the fruit trees we cultivate, are not indigenous to this climate, and that our want of skill and judgment in planting and nourishing them, may embarrass the operations of nature in bringing the fruit to perfection. It becomes necessary, therefore, to ensure success, that we should aid nature in her operations, by removing all obstructions to her efforts, and furnishing the proper attention and nourishment for the prosperity of the tree. In order to effect this, observation and experiments are necessary; and ordinary care and attention to the method prescribed above, will be sufficient to accomplish our purpose.

How much, then, is to be deprecated that want of zeal, which is so clearly manifested in this section of the country in relation to the cultivation and care of fruit trees. Providence has peculiarly blessed us with the means of indulging in most of the luxuries enjoyed by other sections of the globe, but our apathy appears to have created a total disregard to her munificent blessings in this respect. There is no spot on earth where most of the stone fruit of other climes, could be cultivated in more perfection than in this State. The diversity of soil produces diversity of fruit, and although, on Charleston Neck, peaches and nectarines are destroyed by various insects, yet, all kinds of plums and cherries may be raised in great perfection, some of the latter raised there by Mr. Michel, are equal in every respect to any ever produced in a more Northern climate. Cultivators instead of importing and increasing the fine plums of France, appear to be satisfied with the miserable trash that grow unheeded and uncared for in thickets. This negligence is reprehensible and ought to be corrected.

A FRENCHMAN.

PART II.

SELECTIONS.

On Chemistry, as connected with the developement and growth of Plants.

By the Author of the Domestic Gardeners' Manual; in a series of numbers, published in the London Horticultural Register.

ARTICLE FIFTH.

Light.—I am now arrived at the point, from which my theory starts: the fulcrum upon which it rests, and by which it is supported.

It is usual to consider *light* as connected with colour; in other words, to view it prismatically; and so viewed, its operation and agency are most mysterious. I leave these considerations, however to a Newton, or a Göethe, it is to the vegetable, vital principle that I direct my chief attention, in as much as it is the agency of light upon plants, and their sources of nutriment, in which the gardener is most deeply interested.

Lavoisier, writing upon the developement of light, observes (Elem. Vol. 1. p. 54.) "In the present state of our knowledge, we are unable to determine whether light be a modification of *caloric*," (heat) or if caloric be, on the contrary, a modification of light. This, however, is indisputable, that in a system where only decisive facts are admissible, and where we avoid, as far as possible, to suppose anything *to be* that is not really known to exist, we ought provisionally to distinguish, by distinct terms, such things as are known to produce different effects. We, therefore, distinguish *light* from *caloric*; though we do not, therefore, deny that these have certain qualities in common, &c. &c.

The father of modern chemistry herein, as in most other of his luminous and truly candid statements, made a great advance; but in his day electricity had excited little attention, and was comparatively little known or studied. Perhaps the scientific world is more deeply indebted to the illustrious Davy than to any other individual philosopher, for the identification of electric, with chemical action: he detected phenomena, which led him to the conclusion, (to use the words of Dr. Paris in his life of Davy) "That the evolution of light and heat cannot be ascribed simply to a gas parting with its latent store of etherial fluids," and "That, since all bodies which act powerfully upon each other are in opposite electrical relations of positive and negative, the evolution of *heat and light* may depend upon the

annihilation of these opposite states, which will happen whenever they combine."

Respecting highly the authority of the great deceased; and (on the points just referred to in the quotations) agreeing with him as far as we identify what is termed *electricity* and *electrical*, I still cannot bow down, and consent to be restricted to that authority. He cleared the way to a more refined philosophy, and truth is daily becoming more manifest. To render this apparent, I shall refer to what I mentioned in my answer to correspondents at page 239, (*Hort. Reg.* May) of the discovery by the successor, to Sir Humphrey Davy, the amiable Dr. Faraday. I have another motive for recurring to the notice concerning this gentleman; which is to caution any reader against placing confidence, even in the *scientific notices* of the newspapers, or periodical journals. I had read in more than one of these, an account of the all-pervading "etherial fluid discovered by Dr. Faraday, which, fluid acted, or became revealed in certain definite proportions. I carried my determination into effect, and wrote to that gentleman. The exaggeration of the public report was immediately apparent; but the importance of the discovery actually made, will be so also. I copy the Doctor's own words, as belonging to general science, and not to me individually. In the first instance the word "etherial," is a misprint of *electrical*, for all the Professors' researches lately, have related to Electricity. "I have not given a strong opinion" (he observes) "on the point of *one* fluid, but I do not see a single experiment or fact which proves the existence of two electric fluids rather than one."—"What I have lately done is to shew that the *chemical action of Electricity is perfectly definite*, as definite indeed as the action of ponderable agents: Thus, I have devised and perfected an instrument *by which we can measure voltaic electricity*, and then measuring out the electricity, I find that a *constant quantity* will *decompose* exactly, *equivalents* of *various compounds* however dissimilar in their particular nature they may be."

This is the bare fact—the sum and substance of the discovery, and very grand it is: it is a vast point gained; but it does not immediately refer to the inquiry I am now engaged in. I mention it, however, as being highly interesting in itself, and as tending to rectify a glaring error on the part of those who affect to disseminate reports of scientific discoveries. However, I request the reader not to lose sight of this simple account which displays the accuracy attained in the prosecution of delicate experiments. I also shall have occasion to notice that modification of light which we term electricity.

From the first moment that I began seriously to reflect upon the philosophy of nature, my mind became imbued with the conviction that one, universal, vivifying principle, is, and has been in active operation from the commencement of time. The unity of creation, the universality of Light, at once require, and prove, this to be the fact. Perhaps, I was first induced to take this comprehensive view of the eternal laws of nature, by the grand and beautiful observation, of the late Professor Playfair, in one of his concluding lectures. "If we consider how many different laws seem to regulate the action of impulse, cohesion, elasticity, chemical affinity, chrystallization, heat, light, magnetism, electricity, galvanism; *the existence of a principle more general than these, and connecting all* of them *with that of gravitation* appears highly probable."

Without at all referring to the theory of Professor Leslie *that the globe is cavernous, replete with light, shining with intense splendour;* I fear not to hazard the assertion that *Light* is the only etherial substance, or matter, throughout creation that pervades every body in nature. If we admit this fact, we need not perplex our imaginations to discover the one great source of this essence. The *Sun* stands revealed to all, and the life of all creation is dependent on his beams. If this be so, who can doubt that the one great, governing, connecting principle, is at once manifest and apparent."

"*Let there be Light*"—was a word of power, view it in all its bearings, and in what way we please, for the life of all created things was included in the fiat; since, there is not one act of progress or increase, of respiration, decomposition, of electrical or chemical action, that is not, and ever has been, dependent on it for its commencement, continuation and completion. These are bold assertions, but let the doubter turn his eyes to the glorious orb, and consider that its beams have been poured upon the planetary system for a time without known bounds: let him, with the eye of a philosopher, view the mighty arts of incipience and developement that are manifestly, and beyond the reach of question—the result of his power, and he will find himself reduced to the dilemma, of admitting that the light is either absorbed by the surfaces upon which it impinges, or that it becomes extinguished and lost. That any portion of light should be so extinguished is in direct opposition to all analogy; for, every well investigated phenomenon affords evidence that one eternal routine prevails, that the decomposition of one substance is the formation of another,—that an apparent change, or even destruction, is but a step towards some important completion, and in one word that not one iota of created matter ever was or can be lost.

Now, if the sun's beams have been absorbed, they must lie masked or concealed till they be excited by some powerful stimulus, and when so actuated, they produce the most stupendous phenomena.

I assert then, as the basis of my theory,—of all that I conceive of vegetable, vital action, that Light is universally diffused, that *its source* is the sun, and its *effects*, the revealment of *electricity, magnetism, heat, chemical attraction and repulsion*,—and finally of *gravitation*, acting on the laws of electric induction. For as all bodies when electrified, produce an opposite state in other bodies, when within the range of their influence, so the Sun, being the grand fountain of pure etherial light, and electrising all bodies within the range of its beams, produces a condition in such bodies (primary and secondary) which lead them to attract each other and to be attracted themselves, by *him*, in their turn. *How* these miracles are effected, the human, limited mind can never be able to discover. I admit also that our machinery may never embrace, or confine the minute particles of those essences which are ever in active, ceaseless interchange; but we want not minutiæ: we *see the Sun:* we feel his agency, we behold the mighty effects of his radiance. The Gardener above all is the honoured being, who has, throughout his whole experience, one undeviating routine of proof upon proof. Gladly should I hail the detection, by machinery, of definite proportions of light, that had previously lain masked in bodies under experiment; and verily the phenomena of voltaic electricity, and the discovery of Dr. Faraday, have not left us without a promise of "the great hereafter,"—but if we be not permitted to withdraw the veil, how much more of substance, of reality do we

possess than are to be found in the wild undefiable visions of *latent heat*. The very term is a contradiction,—*Heat* that is not manifested is not heat—if it be manifested, or measurable, it is no longer latent. I know that the same thing may be said *of light*, and I admit that while it remains absorbed, it is not visible; but we have a mighty first cause to go to, which the *caloricians* have no trace of, or claim upon; their's is "a deed without a name"—unless it be a wrong one—an effect without a cause, unless it be inappreciable. We have the *Sun*, the grand first principle, and we have enough. Humility instructs us to be grateful, and as Lord Bacon would have said, to add, "*the superlative of praise—admiration*;" while we each aspire, "What I know not—teach thou me."

Light pervades, imbues, influences all things, this is the truth of truth. We do not perceive it in a drop of water; yet water contains all the elements of tremendous combustion. This phenomenon is within the detection of the chemist's art. Flint does not manifest light; yet who will doubt its excitability? Hydrogen gas, the lightest of all vapour, is invisible; but let a stream of it be projected through an aperture not wider than the puncture of a pin, upon an atom of spongy platina, the cold metal will instantly be heated to redness, and the exciting gas inflamed. A piece of glass, and a small square of black silk, are both inert, and cold bodies; yet sparks of etherial fire will be elicited by the friction of the two. A lump of white sugar rubbed up with a small portion of chlorate of potass, is a mild and innocent powder; or if it be blended with a little mucilage and attached to one end of a match, it will remain silent for any length of time; but apply the minutest drop of sulphuric acid to either, and the mass will burst out into a vivid flame. Vegetables are inert, they obey the sun, they drink his beams; colour is imparted to their foliage, and flower. They decay and wither, and then will, by the application of flame, yield to rapid combustion, and produce matters, the existence of which, could no more be expected, than was the light which blazed from their substance.

Heat may be excited without the revealment of flame, and here is the grand rallying point of the partizans of *latent caloric*, but heat, like all the other phenomena, is but a manifestation of chemical action. I am willing enough to cede the point, that heat becomes revealed, occasionally, without light, and so far to allow *the latent existence of its cause*. I only object to the theory which claims the latency of heat as of a material substance *sui generis;* I seek for a cause and source, and fined both in solar light: herein is the reality! The minutiæ, the revealments of all the great natural agents,—electric light, heat, magnetism, attraction and repulsion, I conceive to be dependant upon the energy of the *one great principle*, exerted under peculiar circumstances. Philosophers, I trust, are advancing on the road of individual discovery, and they who possess wealth, time, and a refined apparatus may employ them to the greatest advantage. What Davy did, what Faraday is doing, may be but the forerunners of a day of splendour: in the mean time, the Hypothesis I advocate has truth as its base, though I feel utterly powerless in attempting even to think of the tremendous processes which it involves.

Light is applied to vegetable bodies imbued with life, is productive of manifest effects; but it is a mistake to suppose that there can be a state of total seclusion from its influence. It is usual to say that plants in a dark cellar are void of colour; and certainly in such a situation.

they retain little, if any, of the green tint of a healthy growth, exposed to the direct ray; but *air* is replete with light,—this is provable by direct experiment; water abounds with light, and enough may be extracted by vital action, to secure a weak existence, and even some colour. Nothing can be more completely buried in apparent obscurity than the roots of a plant in a pot of mould; but let any one take out the ball of a vine, of an Enythrina laurifolia, &c. &c., and he will soon perceive that the terminal points of the advancing roots are tipped with a pea green tint. A Rhubarb plant growing in a dark corner of a cellar has gorgeous colours—almost a golden yellow, relieved with lively red, yet in a few hours these tints will yield to green, if the plant be removed to air and daylight.

But another manifestation of one of the chemical energies of light, is at hand in all vegetable progress, and that is *electricity*. Hence it is, doubtless, that plants increase most rapidly when atmospheric changes, productive of warm showers, are most active. I speak, however, of the silent electricity which results from the decomposition of aerial water, and of manuring (that is, nutritive) substances within the range of the rootlets of plants. *Electricity* in masses, produced by our machines, as it has been artificially employed, possesses nothing in common with the silent influence exerted by the passage of atmospheric electricity, inducing a corresponding action about the roots. The one is unnatural, a violent passage of a shock, or at least, of a luminous stream, wholly at variance with the secret energy of native electricity, and destructive of vitality: the other is a gentle, invisible medium, suitable in every sense to the capacity and want of the being which it stimulates. The whole process of nutrition depends, I conceive, upon this electrizing principle of solar light, and *that* will be considered in a future paper. All that now remains to be adduced in corroboration of this hypothesis of vegetable life, (independently of the *phenomenon of the dew*, of which mention was made in the last paper) is the fact to which I beg the reader to bend his whole powers of reflection. Vegetables are either acted upon, stimulated, and impelled, to the performance of all their vital functions; and if this be fact—then what is *the stimulant?* Or they are beings imbued with life, and having the power of volition, perception and discrimination! Where is the alternative? My own opinion, after mature consideration, is this—that plants are mere instruments, but most important ones, that they are acted upon by the rays of light, and at the same time, decompose and fix a portion of those rays, and liberate free electricity, by which chemical action is excited in the manuring substances, sap prepared, and then attracted into the vessels of supply. Hence, that *light* is to vegetables, as well as to the whole creation, the stimulus of the living principle. Its operation during the day,—particularly in bright sunshine,—may be chiefly that of maturation, though I have lately seen facts which satisfy me that *growth* and extension, prevail most in high temperatures, during the day, provided great moisture be supplied. Torpor succeeds to activity, the night is a period of rest and silence, the plant becomes refreshed, and prepared to meet and second the stimulating influences of the succeeding day. Thus all is harmony, perpetual routine, verdure, and maturity; and all are dependant upon the one great principle—*Light.*

July 14*th*, 1834.

Reeling and Manufacturing Silk.

[From Cobb's Manuel—continued from page 267.]

THOSE who do not choose to proceed any farther in the business than to raise the cocoons, may realize a reward for their industry, by selling the silk in that shape. There will probably be regular advertisements in the papers, offering cash for cocoons; and there is no doubt but that there will soon be established throughout the United States a regular market price for the article.

But as raw silk is the shape in which the article must be sent to foreign manufacturers, if exported, and in which it meets with a cash market in almost every part of Europe, and in many parts of our own country; it becomes of great importance that we should reel the cocoons, at least, and that in the most economical and profitable manner. The art of reeling was formerly carried on to considerable extent in Georgia, and large quantities of raw silk were exported. It has been carried on in Connecticut for seventy years, in a way which will be mentioned hereafter. Dr. Franklin addressed a letter on the subject to Dr. Cadwallader Evans, from London, January 15, 1770. The Philosophical Society of Pennsylvania, to whom he sent the work of the Abbe Sauvage, a summary of which has been published by Mr. Odell, of Burlington, resolved to petition the Legislature for the encouragement of this new branch of industry, and proposed to raise a fund by subscription, for the purchase of cocoons and a filature. Eight hundred and seventy-five pounds, were obtained the first year among the citizens, and this money was laid out for the purpose. But unfortunately the war of the Revolution put a stop to the scheme. Lately, however, Peter S. Du Ponceau, Esq. of Philadelphia, the friend and companion in arms of Lafayette, has made successful exertions in this department. He has associated to his labours Monsieur J. D'Homergue, who is a native of Nismes, in France, and was educated in that country in an extensive manufactory of silk, and is familiar with all the processes used in that country. These gentlemen have published a valuable series of essays on the subject of silk culture, the impulse of which has been felt throughout the Union, and their publication has on the whole, thrown great light on the general subject.

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Ponceau sent me some of the silk reeled by Mr. D'Homergue the last year, which was of excellent quality. I had it throwsted and returned to him. In a late letter to me Mr. Du Ponceau stated that he had been honoured with letters from all parts of the continent from Maine to Louisiana, requesting information on this subject. That the impulse given by the operations of congress had been felt even in Europe; that he had caused one hundred copies of the Report of the Committee on Agriculture of the House of Representatives of the United States, to be printed in English, and one hundred in French, and to be disseminated throughout Europe. The result had been that numbers of silk manufacturers, throwsters, dyers and weavers, had come to this country from England, France and Germany, having heard at home that the silk business was encouraged here; but they have found no work for want of raw silk, and were obliged to turn to the

cotton manufactories for employmen . That no reelers were among them. Mr. D. had about sixty pounds of raw silk reeled at his filature, which he has sent to different markets to try the prices.*

Mr. D'Homergue divides the raw silk into three qualities, graduated according to their different degrees of fineness. These different qualities, before they undergo the operations that are to fit them for the loom, are distinguished as first, second and third qualities beginning with the finest. They assume other names as soon as they have been prepared and made fit for the manufacturer. Then they have ceased to be raw silk, and they are called singles, organzine and tram silks, according to their different degrees of fineness, and the manner in which they have been passed through a certain machine called a mill.

Singles (called in French *le poil*) that is to say, hair silk, is made of the first quality of raw silk, consequently the finest, as the name implies. It is made of a single thread. This silk is used for the woof of the lighter stuffs, the warp which is made of cotton thread.

Organzine (in French *organsins*) is the next in fineness. It is employed in weaving to make the warp of those stuffs, that are made entirely of silk.

Tram silk (in French *la trame*) which means woof silk, is thickest of the three and is the thread of which is made the woof of silk stuffs.

Of the three qualities of raw silk of which these different threads are made, the second, that which makes organzine, is the most in demand in foreign markets. It was in extracting the silk to form this quality that Mr. D'Homergue discovered the superior fineness of the American silk, by finding that it required a much greater quantity of threads to produce the different qualities of raw silk above-mentioned than the cocoons of Europe.

In regard to the imperfect cocoons, Mr. D'Homergue makes use of the excellent paragraph from scripture, 'gather up the fragments that nothing remain.' He says there are a great variety of these, whose threads are not susceptible of being prepared for the manufacture of silk stuffs. They are called in French *chiques*. The material extracted from these cocoons is employed in the manufacture of sewing silk. This silk is of two kinds, each of which has its first and second

* Since writing the above I have visited the city of Philadelphia, and was politely favoured by Mr. Du Ponceau, with liberty to make several visits to his nursery and filature. The filature was established by Mr. Du Ponceau under the direction of Mr. D'Homergue, in which ten reels have been employed, each of which is worked by two women under the superintendance of Mr. D'Homergue. This filature is not in a room, but under a shed entirely open on one side with hangings from the roof on the other, which may be opened when required to promote a free circulation of air. The reels of this filature are made chiefly on the model of the Piedmontese reel, (see plate) somewhat simplified by Mr. D'Homergue. Mr. D'Homergue put one of these reels in operation in my presence, and it appeared to work very easily. The silk reeled by Mr. D'Homergue, at that time, I have preserved as a specimen, and have since been informed by an intelligent merchant of New-York, that it would bring seven dollars a pound in France. I was also shown several parcels of sewing silk, manufactured by Mr. D'Homergue from the refuse cocoons. I take this opportunity to acknowledge the fairness and liberality of these gentlemen in introducing me to every department of the silk business, and for the polite attentions I received from them during a visit of two or three days to their city.

quality. The name of sewing silk is exclusively appropriated to the finest of these two species, the other is called cordonnet or twist.

The sewing silk, so called, is employed in the sewing of silk stuffs, the cordonnet is used for working button-holes, and working woollen and cotton stuffs. The one is for the use of tailors, the other for milliners and mantua-makers. Tailors employ it only in the more delicate works. The raw silk for these purposes is extracted from the bad cocoons, reeled and wound into skeins, according to its different degrees of fineness, in the same manner and by the same process (varying only in details) as that intended to be used for the manufacture of fine stuffs. It is sold in market under the name of raw silk, but does not bear so high a price as the other.

There is a loose, furzy substance on the outside of the cocoons, which is neither fit for use in the silk manufactory, nor for sewing silk. This is commonly called floss. To this are added all which either from some defect in the cocoons or from the awkwardness of the reeler, either break or come out uneaven, or are otherwise unfit for use, and which are called waste silk. This mass boiled in soap and water, and afterwards carded and spun on the spinning wheel, makes excellent yarn for stockings.

Mr. D'Homergue classes the different kinds of silk extracted from the cocoons into six different kinds, viz.

1st. Silk of the first quality or singles.
2d. Silk of the second quality or organzine.
3d. Silk of the third quality or tram silk.
4th. Sewing Silk of the first and second quality.
5th. Cordonnet or twist Silk of the first and second quality.
6. Floss Silk.

The whole of the labour of extracting these different silks from the cocoons, and all the preparatory work until it is put to the mill is done in France by women, who have separate tasks assigned to them in each of the various complicated branches of this business; the workshops are superintended by an overseer who is master of the whole business.

Mr. Murray, a European writer, says that he visited an establishment for unwinding the silk at Buffalora on the Milanese frontier. Women were arranged opposite each other and conducted the process; the cocoons contained in baskets on one side, were thrown by handfuls into cauldrons of water, kept boiling by charcoal fires beneath. Each (by a whisk of peeled birch) collected the threads en masse; the first confused portions were rejected till the threads unwound regularly, freely passing over the glass rods to prevent the injuries of friction. The first portions necessarily useless, are separated by the hand. When the thread came off uniformly, the cocoons were raised, suspended to the hand by their respective threads, and thus handed over to those on the opposite side, who in their turn threw them into cauldrons of water, the temperature of which was nearly that of blood heat and more than milk warm, thus sustained by a steam pipe. The water was thus kept clean and the silk preserved pure and unsoiled; from these the threads were finally wound. The proprietor informed him that this establishment cost about 60,000 francs, or about twelve thousand dollars.

This was probably Gensoul's apparatus, on which great encomiums have been passed. In this apparatus the water is heated by steam; but it is expensive and has not yet got into general use even in Europe.

We in America are not obliged to pursue the same course that is followed in Europe. The ingenuity and intelligence of our country will soon arrange a reeling apparatus by the family fireside; and that part of the year which cannot be employed in rearing the worms will be advantageously improved in reeling the cocoons to any given pattern or degree of fineness; nor is there in fact any more difficulty in it than in the manufacture of straw, and many other employments which have engaged the attention of our females. The time is not probably far distant, when America will excel Europe in her silk manufactures as much as she now does in her cotton.

The great requisite in reeling is evenness and equality in the threads. After the cocoons by reeling have been converted into *raw silk*, that silk, before it can be used in the manufactory of fine stuffs, must undergo the operation of *throwsting*, that is to say *twisting*, which is done by means of a machine called a *throwing* or *throwsting mill*, and the mechanics who perform that work are called *silk throwsters*. There are several of them already in the United States, chiefly from England, but they have as yet been mostly employed in throwsting foreign silk, imported chiefly from China.* The operation of throwsting is the test of the good or bad reeling of raw silk. If it be entangled, or not sufficiently freed from its gum, the threads break in the preparatory operation of winding, and that occasions much loss. If the threads are not equal, that is to say, if there is not in each thread as nearly as possible the same number of fibres, as the twisting is done by machinery which works by an equal regular motion, the force which will only twist the strong parts of the thread will break the weak ones, and that with the loss by winding, produces what is called waste. In proportion to the greater or less quantity of waste that is found in raw silk is the price or value in foreign markets.

Mr. Du Ponceau has communicated to me a letter which he has received from an eminent silk merchant in Paris in which he tells him that the best French raw silk of 15 to 20 fibres, lose only by waste 1 to 2 per cent.; those of Asiatic Turkey, from 6 to 8; of Calabria, 8 to 12; those of Valencia in Spain, 6 to 8; those of Syria, 15 to 20; and those of Saloniki and the Morea, he says, are still worse. That gentleman requires two years for the American women to learn to reel silk in perfection; but there is no doubt that they will learn in a much shorter time. The silk reeled last year at Philadelphia, by women, under the direction of Mr. D'Homergue, was pronounced in England to be a fair beginning. At the last news received from that country, it had not yet been thrown, except a small sample at Manchester, which was said to have undergone every test, and produced a result highly satisfactory. In quality it was said to be superior to most Bengal silk, and equal to the silks of Friuli and Trent.

Mr. Richard Radnell, a late English writer, in his view of the English silk trade, published in London in 1828, states the average waste in different silks to be as follows;—French, silks 4 to 10 per cent.; Lombardy silks 4 to 12 per cent; Friuli silk, 4 to 15 per cent. So that it would seem that French silk is better reeled than Italian silk, which is different from the opinion before generally entertained. On silk from Persia, the waste is estimated from 8 to 20 per cent; and on Brutia silk. from 4 to 18.

As to Bengal silk, that which is reeled in the Company's filatures, which is distinguished by the name of Novi silk, because it is reeled

* I have had three of them in my employ.

under the direction of an Italian, from Novi, in Piedmont, is estimated to lose by waste from 3 to 8 per cent, which would make it superior to French silk; while that reeled in the native filatures as they are called, is estimated to lose from 5 to 15 per cent. (See Radnell's View, page 34.)

The reeling of silk from the cocoons requires skill, practice and experience. But let not those who undertake it be easily discouraged; perseverance and attention for a short season will enable them to become expert at the business, although their first efforts may seem discouraging.

The following instructions for reeling silk, I have found from practical experience of several years in my own family, to be useful. They are chiefly extracted from the Manual published by authority of Congress.

The reeling may be done at any season, but best in dry weather; it may be carried on in the dwelling-house or in a shed, or other convenient out-building.

The softest water should be chosen for soaking the cocoons. The proper temperature cannot be ascertained until the reeling is commenced, owing to the different composition of the silk. It is as well to raise it to near the boiling point, and then, if necessary to lower it, cold water may be added. The soft or satiny cocoons require water less heated than the others. If too hot water be used they furze out in unwinding. The dupions or double cocoons require the hottest water. The fire under the basin may be lessened or increased, as the occasion may require; a little attention will soon enable the person who has the management of the basin to preserve the water at the proper degree of heat. The reeling is effected by use of a silk reel,* and a basin of water set over a moderate fire in a small furnace. The person charged with the management of the cocoons in the basin must be provided with a small whisk of broom corn, or sharp twigs, cut sharp at the points; and being seated behind the basin, previously filled with hot soft water, and placed upon a furnace, containing burning charcoal, she must throw into the water a handful of the cocoons, and press them gently under the water for two or three minutes, in order to soften the gum of the silk, and thereby to loosen the filaments. She is then to stir the cocoons with the end of the whisk as lightly as possible, until one or more of the fibres or filaments adhere to it; when disengaging it, and laying aside the whisk, she is to draw the filament towards her, until it comes off quite clean from the floss which always surrounds the cocoon, and the fine silk begins to appear; then breaking off the thread, and collecting the floss first taken off, she must put it aside; the whisk is then to be applied again to get hold of the firm fibres, and again, until a sufficient number are procured to form the thread of silk required to be wound off. This done, she is to unite a number of the fibres, according to the fineness of the intended thread, and deliver the compound thread to the reeler, who puts it through the guides; another thread is in like manner to be prepared and passed through the other guides, when two skeins are to be wound and they may be crossed; the threads are then raised forward and made fast to one of the arms of it. Both threads being fastened to the reel, it is to be turned with a regular, even motion, at first slowly, until the threads are found to run freely and easily; for it will

* See the Diagrams, page 321.

happen that some of the ends which were taken to compose the thread were false, because on taking off the floss there may be two or three breaches made in the beginning of the fibres, which, in winding, will soon end, and must be added anew to make up the number designed for the thread.

It is proper, therefore, in the beginning of the thread, to put a few more cocoons than it is intended to continue, as they will soon be reduced to the proper number. The crossing of the threads is considered as an improvement, though it is sometimes reeled without crossing.

As soon as the pods begin to give the threads freely, the reel is turned with a quicker motion. If the pods leap up often to the guide, the reel must be slackened, and the spinner may let the thread pass between the thumb and finger before it reaches the guide. If the thread comes off in burrs, it must be turned quicker. The fire may at any time be increased or diminished, as found necessary, that the reel may be allowed a proper motion, which ought to be as quick as possible without endangering the breaking of the thread, or hurrying the spinner, so that she cannot add fresh cocoons, as fast as the old ones are ended. The quicker the motion of the wheel is, the better the silk winds off and the better the end joins to the thread. One might imagine that the rapidity of the motion might overstrain and break the thread; but from constant experience it has been found that the thread never breaks from the rapidity of the motion; but on the contrary, the quicker the motion is, the more advantageous it is for winding the silk.

While the reel is turning, the spinner must continually add fresh fibres to each thread as fast as she can find the ends, not waiting till some of the number she began with are ended, because the internal fibres are much thinner than those constituting the external layers, but must constantly prepare fresh ends by dipping the whisk among fresh cocoons, of which such a quantity must be occasionally thrown into the basin as will suffice to supply the threads which are reeling, but not more.

The cocoons thrown in must be often forced under water that they may be equally soaked, for as they swim with their greater part above water, that part would remain hard and stubborn, while the part which is under water would be too much soaked; some hot water may be thrown upon them frequently with a brush, and also on the cocoons which are reeling, when they grow dry at the top and yield the fibres with difficulty. The supplying fresh ends when the cocoons are exhausted, or diminished, or the fibres break, is performed by taking one end of a fibre and throwing it lightly on the one that is winding, and rolling them between the thumb and finger, or gently pressing them.

As often, therefore, as the cocoons, partially wound, are exhausted, or the fibres break, fresh ones must be joined to keep up the number requisite, or the proportion; thus three new ones may be wound and two half wound, or four new ones, and the silk will then be a thread to four or five cocoons. The adroitness in adding fresh ends can only be acquired by practice. The difficulty of keeping the thread even is so great, owing to the increased fineness of the fibre inside, that we do not say a silk of three or of four or of six cocoons, but a silk of three to four, of four to five, and of six to seven.

In coarser silk we do not calculate so nicely as one cocoon more or less, we say for example from twelve to fifteen, from fifteen to twenty

cocoons. In beginning a thread of ten cocoons, from sixteen to twenty will sometimes be required to preserve a uniform thread, after a portion of the first layer has been wound off. The quantity of silk which can be reeled in any given time, is in proportion to the quickness with which the spinner can add fresh cocoons. Thus if we suppose that every cocoon at a medium, will either break or be wound off at the end of every five hundred feet, then, if five such pods are reeled together, one will be wanted to every hundred feet that are reeled; if ten are reeled together, one will be wanted at every fifty feet; if sixteen together, then at thirty-one feet, and so on. The seldomer cocoons end, or break, the greater number of them can one spinner attend, which shows the advantage of sound cocoons and of expert management in reeling.

The cocoons which wind off in part only and the shells must not be permitted to remain in the water, as they will obscure and thicken the water, and injure the colour and lustre of the silk, which can then be used only for dark colours. The shells should be buried to prevent their being offensive; as a general rule, the water should be changed as soon as it becomes discoloured.

When the spent cocoons leap and adhere to the guide wires, they must be immediately taken away, else by choking the passage they will endanger the breaking of the thread.

When the reel has remained any time idle, the thread between the basin and the wires may be wet, to cause the thread to run easily.

In winding off the best cocoons some defective ones will be found among them, which will not wind off or are full of knobs; these should be taken out of the basin immediately, in order to be wound by themselves.

The breaking of the fibres is principally owing either to bad cocoons, viz. being ill formed, (as they will be when the worms were disturbed and interrupted during their spinning,) or the fibres may break by improper regulation of the heat in the water; first, when it is not sufficient to make the silk come off easy, or second, when it is too great and occasions burrs, which may stop at the holes through which the thread runs; cocoons also which have two worms inclosed will perpetually break; the whole thread may also break, by burrs stopping at the holes of the guides, or by the reel being turned by jerks. It may be fastened like the fibres, by laying the parts on one another, and giving them a little twist.

A sharp fork may be conveniently made use of to draw away the spent cocoons, or such as being nearly spent, stick to the holes in the guides; and as the whisk will frequently take up more ends than are immediately to be added, and as the spinner will sometimes have occasion to employ both her hands, the brush may at that time be conveniently hung up by the basin, while the cocoons which are attached to it remain in the water, and the ends will be in readiness as they are wanted. If the spinner be under the necessity of leaving off work for any length of time, the cocoons should be raised with a skimming dish out of the water till her return, otherwise by oversoaking they would wind off in burrs; but it is best to continue the reeling without interruption, and to let fresh, but equally equally experienced persons, succeed those who are tired. The person who turns the wheel should have an eye to the threads and to the guide wires through which they pass, that he may apprise the spinner when any thing is wrong; for her eyes will be sufficiently employed about the cocoons. The reeler may

also rectify any thing discovered to be amiss in those parts of the thread which are near the reel, for one hand will always be employed and a stop must occasionally take place.

As the heat of the water in the basin will require to be varied according to the ease or difficulty with which the different sorts of cocoons give off their silk, the spinner should always have some cold water within reach, in order to cool that in the basin quickly, when the silk comes off too easily and in burrs. The water is also necessary for the woman managing the cocoons, to cool her fingers.

More fuel should also be at hand to increase the heat quickly, when the cocoons do not give off their silk readily.

If there should happen to be any sand in the water, the heat causes it to rise to the surface and fix on the cocoons, the thread of which will break as if cut; for this reason the utmost care must be taken to guard against it, and to remove it. Previously to being boiled, the water should be permitted to settle, and the pan must be carefully wiped. If necessary, the basin may be covered while the water is heating.

When the cocoons are first put in water, if the silk rises thick upon the brush or comes in lumps, it is a sign that the water is too hot; if the thread cannot be caught, the water is too cold; when the cocoons are in play if they rise often to the guide wires, the water is too hot; if the cocoons do not follow the threads, it is too cold. It will be seen, by observing the position of the thread upon the reel, that the different layers do not lie parallel to, nor upon, but cross one another. This is owing to the mechanism of the apparatus, and if particularly contrived to effect this object, which is essential to the perfection of the process, and one to which the acknowledged superiority of the Italian silk is to be ascribed. It is effected by the see-saw motion of the distributing rod, which depends upon the relative proportion between the axle and pulley; without this crossing, the threads, from their gummy nature, would inevitably adhere and render the subsequent windings and twistings of the silk very difficult; this sticking together of the silk is called glazing. But the mechanism above mentioned of the distributing rod, prevents the threads lying over each other upon the reel until after it has made many revolutions, and the former threads have dried. During this time the exposure of the threads to the air, causes the first layer to completely dry, and hence no adhesion between them can take place.

The effect of the irregularity of the movement caused by the distributing rod is also to imitate in the unraveling of the cocoon, the same method employed by the silk caterpillar in forming it; for it is a fact, that the silk fibres of the cocoon are spun on it in zigzags, like those formed by the silk reel, and consequently the operation of the reel is in imitation of nature, of which the industry of the caterpillar instructed by her is the prototype. Mr. Nouaille says, that a woman at Novi, (Italy) experienced in the business with the assistance of a girl to turn the reel and attend to the fire under the cauldron, can with ease reel off one pound of silk consisting of four or five cocoons of the most perfect quality in a day. I am credibly informed that the price of silk reeled according to the above directions, in Europe, is from four to seven dollars, according to its fineness. Mr. D'Homergue says a woman may now reel three pounds in a day. Mr. Brown thought he could reel a pound in a day upon my improved reel, but I have never been able to have the finer qualities of silk reeled so rapidly in

my family. The silk reeled upon my reel* sells for $4 50 per pound as it comes from the reel, and some at a higher price. My reel is similar to the Piedmontese, with some considerable improvements; it is finished in a much neater style than any I have seen in this country; it is portable and will be furnished to any who may apply, for the sum of twenty-five dollars.

In preparing the dupions or double cocoons for winding, more are put into the basin at once than of the finest kind. They must be first well cleaned from the floss outside; the water also must be boiling hot, and as the silk they yield is of a coarser quality than the other, and has a good deal of floss upon it, the person who turns the reel must take the opportunity, while the one who manages the basin is preparing the cocoons for winding, to clean and pick off the loose silk from that which is on the reel. These make a coarser thread of fifteen to twenty cocoons; and perhaps as coarse as from forty to fifty cocoons; it is useful for filling in coarser stuffs and likewise for sewing silk.

The satiny cocoons require water only moderately heated. The proper heat will be found by observing the manner in which the silk comes off from the first of them which are put in a basin, and as already said of cocoons generally, if it come off thick, cold water must be added until the proper temperature be attained.

For these two years past, I have been principally engaged in manufacturing, and the different processes of silk manufacture now carried on by me, at Dedham, Mass., I will briefly describe.

Process 1.—*Reeling from the Cocoon.*—This process is performed by girls on my improved reel, (Cobb's†) which works better than the Piedmontese reel or any reel known to be in use, and is the same reel for which I received the premium of the Mass. Agricultural Society. The raw silk as it comes from this reel is a marketable article in any part of Europe, and is preferable to the silks which come from Bengal; upward of a million of pounds of which are used in Great-Britain annually.

Process 2.—*Winding from the Skein that comes from the Reel to the Bobbin.*—This process is performed on the winding frame by girls and children; the silk runs from swifts over glass rods, and is guided by a traverse motion to its right position on the bobbin.

Process 3.—*Clearing the Silk from Knobs and Husks.*—This is done on the clearing frame by passing the silk from the bobbin over a glass rod through two plates of iron nicely graduated to another bobbin; the machine is tended by a little girl.

Process 4.—*Spinning the Silk single.*—This is done by a man on the spinning frame. The spindles in this frame turn 1800 times in a minute, and the wheels are so graduated that any number of twists to the inch may be given.

Process 5.—*Tramming or doubling the Silk.*—This is done by a girl at an engine constructed after a model, for which a pattern was brought from a patented machine in England, which patent is still in force in England; but as their patent laws do not reach here it has been put into use and operates well; by this machine the silk is doubled any number of times required, so as to make a thread of the size required whether it be coarse or fine.

Process 6.—*Throwsting or Twisting the Silk.*—This is done by a man on the throwsting frame, which is constructed on the model

* The fringe of the curtains in the house of the Hon. Daniel Webster, of Boston, was made by Mr. Brown from silk raised by me and reeled in my filature.

† See Cobb's Reel, page 321.

of one imported from England, and is so contrived by means of various small cog wheels, that the silk may be twisted any given number of twists to the inch. The five machines, or engines last named, are driven by water power, and by the assistance of one man, one boy, and four girls, I have caused over three hundred weight of silk to be manufactured the past season.

Process 7.—*Steaming the Silk.*—This is done by submitting the silk when stretched upon the reels, as it comes from the throwsting frame, to the action of steam in a large receiver calculated for the purpose. The steam is raised in a tin vessel over a cylindrical stove and passes into the receiver by a leaden pipe. The object of this process is to set the twist.

Process 8.—*Ungumming or Cleaning the Silk.*—This is done by boiling the silk in soap and water in a large vat for the purpose of clearing it from the natural gum, which is in all silk in its natural state. By this process the silk looses in weight one quarter.

Process 9.—*Dyeing the Silk.*—This is done by subjecting the silk to liquid dyes, and the different colours are produced with about the same ease that are in woolen and cotton dyeing.

Process 10.—*Soft Silk Winding.*—This done on an engine by girls in a manner very similar to that described in the second process, the object of it being merely to get the silk from the skeins to the bobbins. The silk is then fit for the weaver's use.

Thus the silk is carried through ten different and distinct processes from the cocoon to the weaver's use, each of which processes requires skill and care.

The silk is then taken by the weaver and warped and wove into any kind of stuffs required—handkerchiefs, vestings, satins, suspender-webbing and furniture binding have been made chiefly, as also stockings; but the weaving of broad goods is attended with great labour, as there is no protection by government on them of any consequence, I shall not be likely to make them in future to any extent.

I have six narrow looms and four broad looms in operation; and could I meet with suitable encouragement, I should continue to operate them, but as I intend only to make such goods as will sell to a profit; I shall not be likely to extend the making of broad goods, unless I can do it by power looms—but shall confine my attention to the making of sewing silk and such narrow goods as I can sell to a profit. I have not gone into a very minute description of machinery here, as this book is intended for the use of the agriculturist.

Specimens of silk stuffs and sewing silk have been produced in many parts of the Union, but there is want of uniformity and system in the business, and it is evident that no great progress can be made by individual enterprize in manufacturing where a great many experiments are to be tried and considerable capital required. A pattern filature and manufactory should be established by the government and all its citizens disposed should have access to it, and then our people will generally enter into the business, and the ten millions a year now sent out of the country will be retained at home. Individuals who are desirous of being instructed in any or all the various stages of the silk business now carried on by me, may obtain that instruction on reasonable terms by coming and residing with me or in my vicinity.

METHOD OF REELING COCOONS AND MANUFACTURING SILK IN CONNECTICUT.—In the first place the cocoons are stripped of their floss and sorted according to their quality. Then a large kettle set in a furnace or in an arch is filled with water and fire is kept under it; and when it is about to boil a quart of cocoons is thrown into it. They are immediately stirred perpendicularly in the water by a bunch of broom corn tied close together as large as a person's arm, and cut square at the end, or by a corn broom, or something similar. In this way the ends are collected, and attached to the bushy extremity. They are then drawn up by shaking the broom or whatever they are collected with, up and down in order to keep the cocoons in the water, otherwise they will rise. If enough for a thread is not collected the first time, those ends that are drawn up are taken off the bush with the hand and drawn to one side of the kettle. The process is then repeated until a sufficient number is collected to form a thread of the size required, which is usually from eighty to one hundred and fifty cocoons.

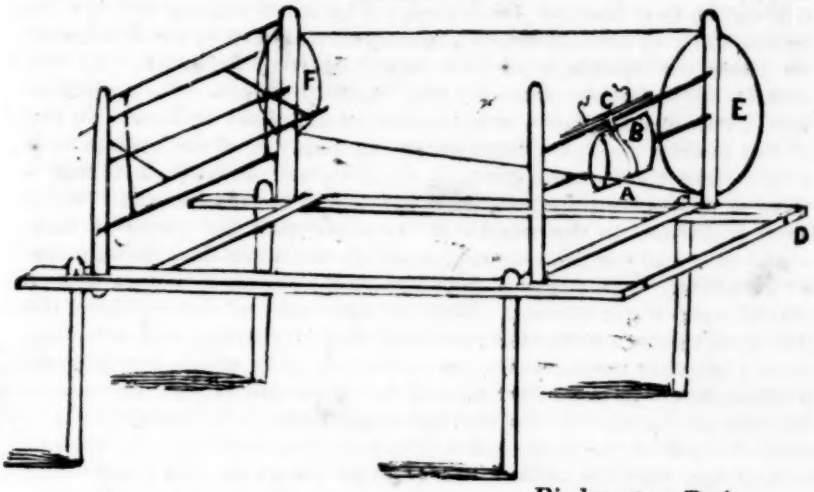
Reeling is then commenced on a common hand reel, (such as is in common use in families in New-England for reeling yarn from the spinning wheel,) and the silk fibres run off about as fast and with as little difficulty as yarn from a spindle. Some of the cocoons run off before others; and when on this account the thread becomes too small, all the fibres are broken off, and what is reeled is tied by itself on the reel, and another quart of cocoons is thrown into the kettle; the ends are collected and reeled in the same way as before, and each separate piece is tied by itself. When the reel is full the pieces are all tied together, taken off and immediately dried.

Most of this silk is manufactured into sewing silk and twist in the following manner:—it is immersed for a few moments in boiling water, taken out, put on swifts and spun or twisted on a common woolen wheel, beginning, at the large end of the piece, that is at the end which was reeled first: and when it becomes too small, which is the case when one-half or two-thirds are run off, the small end of another piece is added to it, and thus they are twisted together. It is then spooled directly off the spindle; a sufficient number of spools is put into a small spool frame to make a thread of a proper size, which is twisted again while it is moist. It is then reeled again and cleansed by boiling in strong suds for three hours, then dried and coloured. Undergoing this process it shrinks about one-half in weight; after this, for sewing silk it is doubled, twisted and reeled on a reel two yards long, and is divided into skeins of twenty threads each, as the statute of that State requires. If it be calculated for twist, it is made three threads, twisted and done up into sticks with a small hand machine, and is then ready for the market. The floss, or tow, as it is called, is boiled in strong suds for three hours, dried, picked, carded, and spun on a common wool wheel. The yarn is woven into cloth, which is worn by the women for every-day gowns. It is sometimes manufactured into very strong and durable carpets.

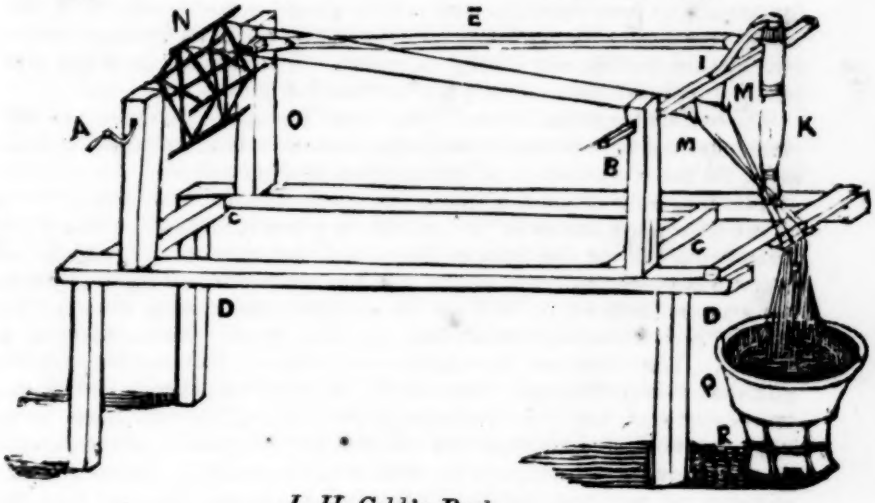
Those cocoons that the grubs have pierced are boiled as above and dried. The end that is not pierced is cut off; they then are spun on a linen wheel like worsted, beginning at the end cut. It is then twisted tog ther, three threaded and knit into stockings.

The imperfect cocoons, and all that will not reel, are boiled, carded, spun and manufactured in all respects like floss, but they make nicer and finer cloth.

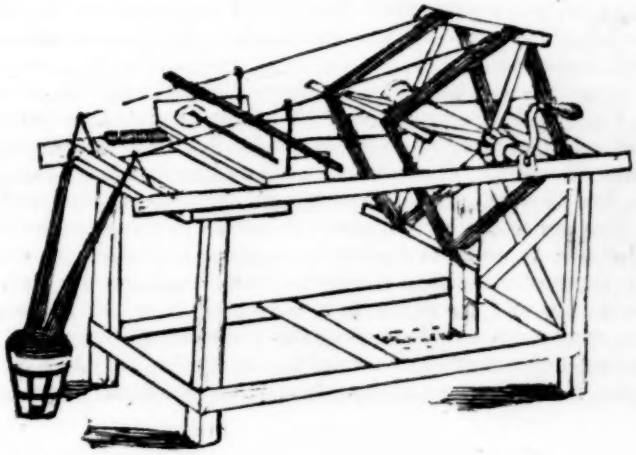
G. B. Smith's Reel.



Piedmontese Reel.



J. H. Cobb's Reel.



GIDEON B. SMITH'S IMPROVED SILK REEL.—This is an improvement on the Silk Reel of Piedmont. The improvement consists in the simplicity of the machinery, compared with that of the Piedmontese Reel, the operation of both being exactly the same. A, is a cylinder eight inches diameter and eight in length. B, a circular groove, half an inch deep, which has a sweep of six inches. To lay out this groove, a strip of paper six inches wide and of the exact length of the cylinder's circumference, is doubled, and with the compass a sweep is made from the middle of one end of the double paper to the edge and thence to the middle of the other end; the paper is then turned over and the same sweep made on the other side, in an opposite direction. The paper is then laid on the cylinder, and the groove marked upon it for cutting. Thus on each side of the cylinder the groove will form a semi-circle meeting in the middle, and will thus cause a peculiar motion to the traversing bar, (C,) which it will cause to move slowly at the extremities of its course and rapidly in the centre, thus giving time for the threads to take hold of the rails of the reel on the outside of the skein before it begins to move back. C, the traversing bar, with the brass hooks through which the silk passes. D, a bar of the frame on which a brass plate is fixed, with small holes, for the silk to pass through, and which stands immediately over the vessel containing the cocoons. E, the drum, eighteen inches diameter. F, the pulley, ten inches diameter. The size of the drum and pulley precludes the possibility of the band slipping.

The whole frame is five feet long, four high, and two wide in the clear, and the timber about two inches square. It is put together with keys, for the convenience of taking down and putting up.

The necessity of the machinery for producing the vibratory motion of the traversing bar, will be understood when it is stated, that, if the threads are laid on the rails as cotton is reeled they would adhere and become useless, as they could not be separated. The traversing bar causes them to be laid on in such a manner as to obviate this entirely. By a small handle near the rim of the drum, the reel is turned. With this reel the relative proportionate diameter of the drum and pulley is necessary to produce the proportionate movement of the traversing bar, and the revolution of the reel, as the bar must move back and forth five times, while the reel makes nine revolutions, and as the groove is formed, one revolution of the cylinder causes the bar to move out and back once. This reel I have not seen, but give the description of it as published.

EXPLANATION OF THE SILK REEL OF PIEDMONT.—The frame is 6 feet 5 inches long, 4½ by 3 inches thick. Distance of the upright posts, AB, 4 feet 4½ inches.

CC. Length of the braces of the frame, 20 inches in the clear.

DD. Legs of the frame, 2 feet 3½ inches long. E, shaft with a crown wheel at each end. The wheel F, 9 1-10 inches in circumference, has 22 teeth. The wheel G, 10 inches and 2 1-10 in circumference, has 25 teeth. This shaft has an iron pin at each end 1 inch long. The pin at the end G, plays in a hole in the shoulder near the top of the post O. so as to enable the teeth of the wheel to catch and work in those of the pinion at the end of the axle of the reel, which axle, by means of a pin at the end, also plays in a hole in the post O. The pin at the other end of the shaft plays in a hole in the post K, and the teeth of the wheel F, work in the pinion H, fixed on the top of the post K, by means of a burr screwed on the pin projecting from

the post and passing through the centre of the pinion. This pinion has 35 teeth. On the top of the pinion H, is a crank, having a sweep of 4 inches, and receives on its top the end of the iron wire-carrier of the traversing bar I. The crank is fixed half an inch from the commencement of the grooves of the pinion. This crank is shown in the figure H. I, a traversing bar, 2 feet 10 inches long, ⅛ of an inch wide, ¾ of an inch thick, playing through the posts BK: height of the post from the frame 17 inches.

L. an iron carrier of wire, No. 1, 18 inches long, fixed to the bar I, to work free by a screw. The other end is fixed by a burr to the pin passing through the centre of the pinion H.

MM. Two wire hooks or eyes, (rampins) 7¾ inches apart, at equal distances from the ends of the traversing bar through which they pass. The wires to the commencement of the turns of the hooks are 5 inches in length.

N. The reel; arms, 2 feet 2 1-10 inches long in the clear: 1½ inches wide, and 8-10 of an inch thick; rails, 20¾ inches long, 2 inches broad, 8-10 of an inch thick; two of the are arms jointed, to allow the skeins of silk to be taken off when reeled and quite dry. There ought to be an extra reel to put in the place of the one taken off to prevent the work stopping.

O. Upright support for the axle of the reel, on the ends of which the pinion is fixed, to work with the wheel G, at the end of the shaft E. The pinion of the axle has 22 teeth. P, an iron plate with four holes, 12 inches long, slightly hollowed, projecting 3½ inches from the bar: the outside holes are 3 inches from the ends; from the centre of one hole to that of the next, ¾ of an inch. Distance from the two inside and nearest holes, 4 2-10 inches.

Q. The copper basin to contain hot water, in which the cocoons are immersed when reeling off. It is 18 inches long, 1 foot broad, and 4½ inches deep.

R. the furnace to contain charcoal, to keep the water hot.

Distance from the centre of the posts AB and OK, 36½ inches. Circumference of the reel 6 feet 11 inches.

Distance from the top of one arm, where it enters the rail, to another arm, 18½ inches.

From the axle of the reel and the traversing bar I, 4 feet 8 inches.

Cultivation of the Orange, Lemon, &c.

[FROM THE OHIO FARMER]

THIS beautiful family of plants, embracing the orange, lemon, shaddock, citron, lime and their congiers, is one of the richest ornaments of the green-house. All the varieties are almost as easily raised as the peach-tree, and being sufficiently hardy to withstand a slight freezing, if rightly protected, can be secured, with a little trouble, during the severest winter weather.

1. *Stocks.*—The lemon furnishes the best stocks. Sow the seeds of ripe fruit in crocks, filled with a compost of new earth, from under rotten logs or stumps, garden mould and decayed cow-dung, each one part, very fine and intimately mixed. These crocks should be plunged to their rims in the earth within a well regulated hot bed, early in the spring, and their contents be regularly watered.

When the young plants are one inch high, they should be thinned out and transplanted, one to a pot, taking care to leave, undisturbed,

one of the largest, which is to remain for inoculating, during the present season.

Continue to water the seedlings daily, and after stir the earth about their roots with a knife or spatula. When they are removed from the hot bed place them in a situation protected from cold, northern winds, and also from a full exposure to the full blaze of the noon-day sun.

2. *Budding.*—There are *two* periods when this can be performed successfully. To wit: during the *first* growth of the stock in the month of June, and the *second* in the month of August. This state can be detected by the absence of the terminal buds on the ends of the limbs and the ease with which the bark separates from the wood.

The buds used for insertion during the *former* period should be taken from the *last* growth of the preceding year, and during the *latter* from the *first* growth of the present season.

Select the roundest and fullest buds, and if possible those that are not armed with a thorn or spine from trees which are abundant bearers.

Make choice of a smooth place, upon the stock, and proceed as in common inoculation, only place the tranverse incision below the perpendicular one, so as to resemble the letter T inverted thus ⊥, so that the buds when inserted shall be pushed upwards instead of downwards. It may sometimes be convenient, with small stocks, to remove the dirt about the roots, and insert the bud below the surface. Having made the transverse and perpendicular incisions, cut out, immediately below the latter, a semi-circular notch, thus ⊥ for the purpose of facilitating the introduction of the bud between the lips of the bark. Do not attempt to separate the thin film of wood that adheres to the inner surface of the bud. When the bud has been carefully pushed into the perpendicular incision, secure it there with a strip of Russia matting or linn bark that has been long macerated in water: take care not to pass it directly over the eye of the bud.

The pots should then be placed entirely out of the reach of the sun, but not underneath the eves of a house or limbs of a tree. Water the plants daily, but use special care not to permit the water to run down the stock, as it would destroy the inoculation.

At the end of two or three weeks the foot stalk of the leaf of the bud will drop, and the stock begin to swell above and below the ligature, which should now be removed or loosened. If it be in the month of June, cut off the stock about 3 inches above the inserted bud, and in a few days the second growth will commence, and that bud will burst forth with great vigour. If it be in August, delay cutting off the stock until the ensuing spring, unless there is an evident disposition to put forth, by the bud, which sometimes happens late in the summer.

In one instance the writer of this article had an inoculation six inches high in November, growing on a stock raised from a seed sowed in the month of March of the same year, and in three years it had upon it six large and ripe oranges.

3. *Fruiting.*—As soon as the blow-buds begin to show themselves, the compost should be changed in the tops of the pots, and this should be repeated every six weeks until the fruit is mature. During the whole of this period the trees require extra quantities of water, particularly at the time the young fruit is setting.

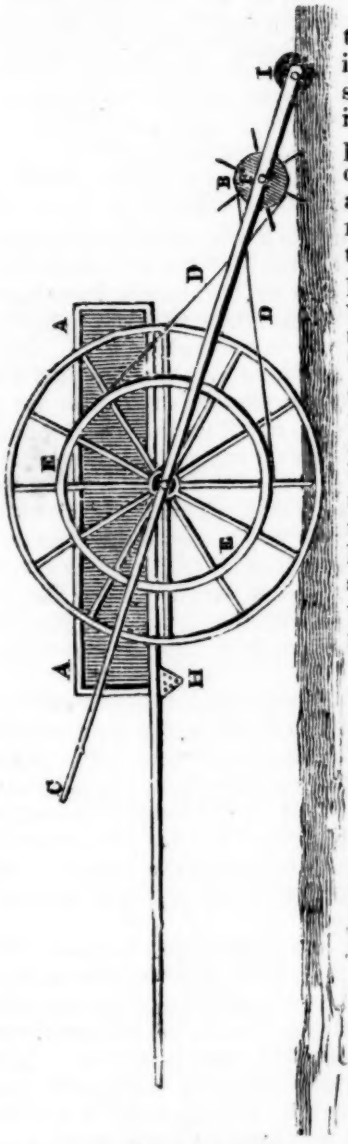
If an excess of fruit should form, it should be picked off.

During very cold weather and while the trees are not in active growth, they require much less water.

4. *Protection in Winter.*—They can be protected in a healthy state in almost any tight parlour or setting room, provided they are not exposed too directly to the scorching heat of the fire, and are furnished with a frequent supply of fresh air.

Woodside's Machine for Harrowing, Sowing, and Rolling.

[FROM THE NEW-YORK FARMER]



Sir,—I have recently invented and tested what judges esteem a valuable improvement in the harrow. It consists of a revolving cylinder, containing 45 feet, which is revolved by a power obtained from the wheels of a cart, to which it is with ease attached and detached. In addition to the harrow, there is a convenience for sowing the grain in front of the cart, by supplying a hopper, from which it is conveyed into a sieve, so constructed as to distribute it from wheel to wheel. The cylinder harrow in the rear of the cart effectually covers the grain. Attached to this is another cylinder used as a roller. From the above it will be perceived that I can of a truth affirm, that I can sit in the front of my cart, under a canvas covering, sow the grain, harrow and roll it in, without exposure to the sun, leaving the ground without any impression of the horses' feet, my own feet, or the cart wheels.

You will perceive by the crossing of the band, that the cylinder has a counter motion to that of the cart wheels, making 12 revolutions while the wheels of the cart make one.

References.—A A, the cart; B, cylinder; C, shaft on one side, with a power to elevate or depress the cylinder; D D, chain-band; E E, the V groove-wheel; F, do. do. on the end of the cylinder; H, the end of the sieve; I, the roller. The hopper is inside the front of the cart, and not seen.

Highly competent judges have approved of the machine, and I think the advantages great. I am advised by Mr. Van Kleek, of your State, who has witnessed its operations, to exhibit it at Albany, before Mr. Van Rensselaer, and other patrons of agriculture in that vicinity. This I shall do as soon as I conveniently can.

It is my determination to dispose of only a half or fourth of a right

to a State, until it shall recommend itself to the public. Although the invention has been patented by me nearly a year, yet I have not heretofore brought it into any notice, having been determined to perfect it as far as possible before exhibiting it.

Your very obedient servant,
JAMES D. WOODSIDE.

Washington City, D. C. May 9, 1833.

Remarks.—We think very favourably of the above, and hope farmers will show a prompt disposition to favour the inventor, who, we understand, devised the plan and superintended the work of placing the colossal statue of Washington on the summit of the Monument in Baltimore.—*Ed.*

Italian Rye Grass.

[FROM THE CULTIVATOR.]

The following communication relates to a grass of great promise, if it will withstand our winters. The French and Scotch commend it as highly as the Germans, though it is of but recent introduction among them; and our personal observation tallies with the high character which all give it. We sowed some in September, 1833; it promised remarkably well—but the winter killed it. We supplied some friends with seed, which was sown last season; it is of course not yet known what effect the winter has had upon it. The State Society have directed a quantity of seed to be provided for distribution, with the view of giving it a fair trial among us.

Description and culture of the Italian Lolch, (Translated from the German.)—The Italian Lolch *(Lolium perenne italicum aristatum)* yields the most abundant fodder of any kind of grass that is known. Its extraordinary yield has, for several years past, extended the culture of it, in one part of Germany and Switzerland, very rapidly, and also in France some agriculturists have made experiments with it which were completely successful.

If sown in October,* its growth being very rapid, before winter sets in, it makes a thick sward equal to that on old grass land, and the first crop of hay is double to that of a common meadow. The Italian Lolch is entirely different from the English Ray grass, which latter serves only as a means of making a sward on the land for pasturage, does not grow over 2½ feet in height, and gives but two ordinary crops in one season, while the former commonly grows to a height of four feet, on a soil more moist than dry, and gives always four abundant crops in one season, and frequently more.

The haulm is covered with leaves of a light green colour. The most proper time to sow it is in the fall. After a crop of grain is taken off from the land, turn the stubble over, harrow it and sow the seed. And frequently it grows large enough to cut before cold weather; but it is advisable not to cut it, because it will take better root if left. Such a meadow shows itself before winter thick and well overgrown, like an old one, and the first year's crop was, by haying time, a full one. Sowing it in the spring, or month of April, requires moist weather and more seed. The plant is lasting; and at the end of the seventh or

* *Note by the translator.*—The winter in those parts of Germany where the Lolch is cultivated, does not set in so early as in this section of country.

eighth year, these meadows are as vigorous as they were in the first year. If, however, light places are to be seen, they may be renovated by letting the seed get ripe, and shell out, on such places, or they may be sown with new seed. A soil more moist than dry is generally best adapted for this plant, but it has been tried on high lands and on the Alps, where it likewise perfectly throve.

After grain or potatoes, (or other hoed crop,) a shallow tillage is sufficient. After clover or lucern a deeper tillage is necessary, but on old meadow it is advantageous to cultivate first a crop of potatoes or grain, and after these being harvested in the fall, sow the Lolch. These meadows are treated like other meadows; every three years they receive a manuring—top dressing—and the first one is incorporated with the soil at the time of sowing the seed. The ground ought to be well harrowed. The seed is sown broad cast—about 40lbs. to the acre. If sown in the spring, 8 to 10lbs. more are necessary, and one chooses as much as possible a wet time to sow it. After the seed is sown, harrowing may be dispensed with, but the ground ought to be rolled with a heavy roller. This operation has the double advantage to press the seed into the ground, and smooth the land for mowing.

H. D. GROVE.

Hoosick, Rensselaer Co. N. Y. Jan. 31, 1835.

Remarks on the Horn Distemper.

[FROM THE NEW-YORK FARMER.]

ANIMALS of the forest, guided by the principles of instinct, regulated by the dictates of nature, and uncontrolled by man in their food, air, rest, and exercise, are seldom affected by disease, while domestic animals of all countries and climates, more directly under the control and dominion of man, are subject to a variety. There are but few instances on record of prevailing diseases among the different tribes of wild animals, while every appropriate periodical informs us of diseases and their remedies of the whole class of those more immediately under the direction and government of man. Having lately had a fine young cow of the short horn Durham breed, afflicted with the disease called Horn Distemper, and she having thoroughly recovered, I thought it would not be improper to offer for publication in your valuable journal a few remarks on the disease, and my method of its treatment. It is evident this distemper affects the internal substances of the horn, usually called the pith, insensibly wastes it, and eventually, if suffered to make its progress unmolested, leaves the horn entirely hollow. The pith is a porous, spongy bone, whose cells are covered with an unctuous matter and filled with numerous small blood vessels, is overspread with a thin membrane, appears firmly united to the head, and in a healthy animal completely fills the horn, which only serves as a sheath. In horn distemper this bone is partly, at others wholly wasted, commencing at the extremity of the pith. The usual syptoms are a general dullness of the countenance, a tardiness in moving, a formation about the eyes of a yellow viscous matter, failure of appetite, a desire to lie down, a giddiness and frequent tossing of the head, often a stiffness of the limbs is observable, and in cows the milk fails. Let the other symptoms be what they may, there is always a sudden wasting of the flesh. The horn always loses its natural heat, and a degree of coldness is manifest to the hand by grasping it

firmly. When only in one horn, as is often the case, there will be a very sensible difference in the feeling. If upon examination the horn is cold, we need not doubt the presence of the malady, yet without an acquaintance with some of the preceding signs, we might not be induced to examine the horn, or suspect the evil. As soon as the discovery is made, a hole with a ten-penny nail gimblet should be immediately bored underside the horn, three or four inches from the head. If the gimblet passes through the inside without resistance, it may be bored as low as is judged the hollowness extends; this, generally, if done in season, is all that is necessary. These holes should, however, be kept open, that a free discharge may be encouraged, and a communication be kept up with the air. Bubbles are continually forming at the orifice, through which a thin fluid oozes after the horn is bored. This seems to indicate an internal fermentation. Putrid matter may be formed on the periasteum, and entering into the interstices of the bone, may dissolve the oily substance, and form a fluid so putrid and corrosive as to dissolve even the bone itself. From the sensible relief that an opening into the horn gives the beast, it is more than probable that the distress manifested arises from compression, occasioned by the expansion of the putrid and confined air within, rather than from an effect produced on the blood and juices. In aggravated cases the inside of the horn should be thoroughly syringed two or three times a day with salt and water, soap suds, pepper and vinegar, or any simple cleansing material, (never apply spirits of turpentine, as the manner of some is.) If there appears to be much inflammation about the head, a moderate bleeding in the neck would be beneficial. But when the distemper has communicated its effects to the brain so as to produce a high degree of inflammation, it is much to be doubted whether any mode of treatment would afford effectual relief.

Milch cows are more liable to attack than any other description of horn cattle. It is not common among oxen; I never knew a bull to have it; steers and heifers are thought to be exempt from it under three years of age. It cannot be considered as contagious. Neat cattle are subject to a disorder commonly called Tail Sickness, which is a wasting of the bony substance of the tail, and if not cut off above where the defect reaches, often proves fatal. It frequently accompanies the horn distemper.

FARMER C.

Manlius, February, 1835.

Method of destroying Worms which attack Fruit Trees.

By M. De Thosse.

Unforeseen circumstances often lead to useful discoveries. One fact or discovery leads to another, and many form eventually a succession which continues the chain of our knowledge.

Agriculture is one of those pursuits in which theory should be combined with practice, and those who follow it ought to be duly sensible of the many things which, in its various branches, it is still desirable should be found out.

Among these desiderata are the means of removing from our fields, gardens, and orchards, that multitude of destructive insects which blast our hopes and the fruit of our labours.

I do not find in the various processes which have been published for banishing these hostile armies, the use of a substance which I have found to be a strong poison to all sorts of insects. I have employed it in certain cases—its use may perhaps be much extended. The reasonableness of its price and the rapidity of its execution in several cases in which I have used it, seem to claim for it the attention of agriculturists.

The substance is the spirits of turpentine. I was led to try it by observing that certain plants which have naturally a strong odor, are not infected with insects. Such plants, however, cannot always be immediately obtained, nor is it common for them to emit so strong and penetrating an odor as spirits of turpentine.

Wishing some years ago to raise four young puppies, I perceived them, when a few days old, to be very languishing, and discovered that they were full of insects or lice, which were preying upon them. It was in vain that they were combed—new generations succeeded, or were renewed from the mother, and the little animals were on the point of perishing. I then took it into my head to sponge both the mother and the pups with warm water impregnated with spirits of turpentine, and soon found to my agreeable surprise that every turn of the comb brought out numerous dead insects. The little animals soon acquired vigour, and were saved by a single repetition of the process during the course of the summer.

I tried the spirit on various insects. Lice when touched with it on the point of a pin, made a few rotary bounds and fell down dead. Bedbugs, anointed with the same fluid, after a few steps, turned on their backs and died. A green, gilded insect, as large as a bean, which attacks pear trees, was touched and died immediately, although another insect of the same kind, lived a long time in warm quick lime.

Butterflies, flies, caterpillers, and May-bugs die more or less promptly when attacked with it.

Having learned these facts I soon found occasion to try its effects on some of my trees, which were attacked by a multitude of worms. These I destroyed entirely by putting into a bowl a few handfuls of earth on which I poured a small quantity of the spirits—then adding water, and stirring the whole together until it had a proper consistence to be rubbed or brushed over the ends of the branches. The insects perish with their germs—the odor remains several days about the trees and repels fresh invaders. A mixture of earth is necessary, because spirits of turpentine swims upon pure water and will not mix with it, and if used in too great quantities might burn the leaves.

The drought which occurred a few years ago in the canton in which I live produced a mange in cattle and horses, very extensive, and injurious, and those who escaped this infection were filled with lice, from which they were promptly relieved by sponging earth with water impregnated with the spirits. This infection caused horses, fatigued with labour, to rub themselves so much against mangers and the walls of their stables as to deprive them of much of the rest so necessary to their comfort.

I cannot, therefore, doubt, from the trials that have been made, that much benefit might result from the use of turpentine in clearing fields and trees from insects of different kinds, and that a mixture of ashes with which a portion of this liquid has been incorporated, would remove by its odor, the ticks and other insects which infest

turnips. Its odor is more penetrating in the open air than that of sulphur and some other materials used for this purpose.

It would perhaps be useful in destroying ants or driving them away from espaliers and other places. These insects are very fond of the slime or honey left by grubs, &c. on trees and plants attacked by them.

The essence now recommended is of so moderate a price, and is used in so small a quantity as to be accessible to every body; and it is moreover an article that ought to be found in all farm and country houses, from its being so good a remedy for the wounds and accidents which horses are liable, and for the feet and horns of cattle.—*Jour. des Conn. Unsllese.*

Profit and best Varieties of Poultry.

[FROM THE NEW-YORK FARMER.]

Mr. Fleet,—I observe in the January number of the Farmer for 1835, a communication from L., requesting from me information on poultry. It is a branch of rural economy I but seldom see introduced in the pages of the Farmer, and though I acknowledge it is one of its minor appurtenances, yet I do not think it so insignificant as to be entirely unworthy of attention, for a very little care will supply in abundance those very essential articles in domestic cookery, new laid eggs, and these too, in the middle of winter, when most people's fowls are shivering on the bare tree tops, or moping about for a warm corner. Hardy as the common dunghill fowls are, they cannot suffer this neglect and furnish the egg-basket all the time. If L., or any other of your readers, wish to have eggs, and those in plenty all the year round, they must provide a warm house for them, where they can have screen and shelter summer and winter. In bad weather the doors of the fowl-house should be closed, and the fowls confined, plenty of clean water often renewed, plenty of good food, the house kept clean, and then we may calculate on plenty of eggs. I think I hear the reader draw a long breath at this; but pray, consider, is it such a dreadful trouble: ten minutes or less per diem will tend 200 fowls. In this manner, allowing ten hens to one cock, there would be eighteen cocks and one hundred and eighty hens; now these ought to produce an average of 90 eggs each in the year. This is giving them nine months holiday. Now, then, we ought to have 16,380 eggs, which at 2 cents each would make $327,60; and I would keep them till they did fetch this. Suppose they only sell for half the money, surely this would pay for a few Albany boards, and a little time, or even if the boards were thought too expensive, faggots of cedar brush, and a little straw or sedge for thatch, would answer; these any handy man would soon form into a warm-house; a few poles for perches, and a few places for nests, would complete the job. They will find all or a great part of their own food from May to November, and clear the land of grasshoppers, grubs, and other destructive insects, and by having for them a yard or enclosure communicating with the fowl-house, and with one wing clipped, they may be secured from injuring crops at seed-time and harvest. There are other modes of making poultry profitable as well as by their eggs; but as I have treated the subject

at length in my "*Cottage Comforts*," I shall now only briefly recapitulate two or three varieties, for without a good stock no certain calculation can be made. The common or "*Dunghill-Fowl*" I need scarcely a remark; may be seen every where, of all colours and shapes, and having been so crossed in breeding, no dependence can be placed upon the stock; even if by chance one turns out an excellent layer, the good quality may end with her. The position set forth in our glorious constitution, "that all men are born equal," is certainly not applicable to our poultry yard—here almost every thing depends on the careful selection and continuing the stock; and in furnishing mine, I would not only take care to obtain the exact likeness, but endeavour to ascertain if it came from similar birds for previous generations. On a farm where several varieties are kept, it is almost impossible to preserve any particular breed true. I have known much disappointment ensue from inattention to this particular. Recently an acquaintance of mine purchased a stock of Poland Fowls, and disposed of all his others. They were very handsome, perfectly black, having the King David's crown, and large white top-knot; but behold, all the season not one perfect individual has been hatched; many came out speckled, some perfectly white, some with scarcely any top-knot; and instead of finding the old hens everlasting layers, they appear to be everlasting barren. Probably an indiscriminate collection would produce as many eggs as the same number of any selected variety without due care, but as the most worthless consume as much food, and require as much care, as the best, it will surely be better to feed and protect good layers of large eggs, and provide something more for the table than head, neck and legs. Well-bred Poland fowls combine all these advantages, particularly the plentiful production of *large eggs*. Indeed, such is their propensity for laying, that they will not always sit; and it is usual to hatch their eggs under other fowls. Observe, these fowls ought to have a peculiar spiked comb, and five toes on each foot. Game fowls lay very early in the season, when eggs are scarce and valuable, make good mothers, and may be kept to rear the young Polanders. The large Malay are much in request; they attain an enormous size, and when dressed look more like a turkey than a chicken. My experience will not permit me to say much of their laying quality; possibly a cross with these would make an eligible variety. The white Darking are a fine description of fowls, full sized, large long body, short legs, excellent layers and nurses, but they are very scarce; they should have the fifth toe. The grotesque little Bantam will produce a very large quantity of eggs, and taking size and consumption of food into consideration, will, perhaps, after all, be found the most profitable in this particular. I am not prepared to say where fowls may be had, I have none to spare; a market purchase is hazardous, but perhaps at present the only chance. I am preparing to hatch some artificially, and may have a few Polands and Darkings to spare next fall.

D. F. AMES.

P. S.—Barley and buckwheat ought to be given, with cracked corn, and gravel or sand.

PART III.

MISCELLANEOUS INTELLIGENCE.

A Large Lemon.—The Horticultural Society have within a few days past received from Mr. R. E. Russell of Columbia, (S. C.) a remarkably fine Lemon, measuring 11 inches in circumference, lengthwise, and 9 1-4 round. The lemon was accompanied by the following letter:

To the Committee on Fruits of the Horticultural Society of Charleston,

GENTLEMEN,—I send you a Lemon raised in my garden in this place. The tree is four years old, and has borne two years; it bore 20 very fine ones this year, the largest of which I send you for exhibition. Respectfully,

R. E. RUSSELL.

Columbia, May 23, 1835.

Mr. Michel's Garden, near Charleston.—We have been highly gratified with a visit to the Flower, Fruit, and Vegetable Garden of our enterprizing and tasteful fellow townsman, J. Michel, Esq. attached to his residence in St. Philip's street. Notwithstanding the extreme and desolating severity of the past winter, and the lateness and coolness of the spring, his garden exhibits a most luxuriant and enchanting appearance, teeming with a profusion of rich, rare and useful products, abounding in the choicest gifts of Flora, Pomona and Ceres, and forming, with its varied and lovely hues, an optical feast, and with its delightful odours, an olfactory concert. The floral wealth of his enclosure is immense; about 400 Rose trees, embracing 250 varieties, unfold their banners of beauty, and open their fragrant censers—and of these no less than 250 are Moss Rose Trees—the white, red, dark red and royal Moss—in full bloom. The Plumeria (B.) or Franchipane (F.), the Microfilia Rose, the stately Lady Tankerville, and the Root and *Tree* Peony, (the bloom of the latter of these being a novel triumph of horticultural skill in this State) contribute their respective charms to the attraction of the scene. In the fruit department, we perceive the Srawberry—including the Bishop Superb and the Wilmot Superb—as inviting to the eye as it is luscious to the taste—four varieties of the Cherry, already of brilliant red, and nearly ripe—with twenty varieties of the Pear and French Prune, covered with the richest profusion of young fruit; and among the hot-house exotics, are the Lime Tree, and three varieties of the Banana, from which, fruit is expected next year, and would probably have been realized this season, but for the Siberian aspect of the past winter in our Southern clime. The Kitchen-Garden, too, is vigorous and *forward* in its growth—manifesting either favouring influences or unwonted skill.

The horticultural success of Mr. Michel, is due chiefly to his personal zeal and industry, and a knowledge drawn, not from books, but from actual and patient experiment. He has spared no expense to enrich his garden with the rarest exotics, both of the ornamental and the useful kind, and has succeeded wonderfully in naturalizing them—in enlarging the limits of our vegetable citizenship. But it is in the processes of grafting, and budding or inoculating, that he has achieved some of his greatest triumphs—the former being done with so much nicety, as almost to hide from detection the point of union between the parent stem and the inserted shoot; and the latter shewing, in one instance, no less than nine varieties of the rose on a single bush.

We learn that Mr. Michel intends devoting himself with even more zeal and industry than hitherto, to the horticultural art, his proficiency and success in which have been already testified by a number of premiums from the Horticultural Society of this city; and will, in aiming to supply the place of the deceased Mr. Noisette, dispose of fruit trees, plants and flowers, at suitable prices.—*Courier of 5th May.*

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Whittemore's Improved Cotton Gin.—We had the pleasure the other day of examining the Gin described in Mr. Whittemore's advertisement, and observing its mode of operation; and we would advise every Sea-Island planter in the city to go and do so also. The advertisement falls short of justice to the simplicity and completeness of the mechanism, which is admirable throughout. The cotton is ginned without breaking the seed or injuring the staple, the rollers being preserved from being heated by friction rollers. The moving power is applied somewhat on the principle of the treadmill, the horse or ox being placed upon a revolving floor which moves from the weight of the animal, and obliges him to keep his feet in motion. By this means the motive power is communicated by the use of the endless chain to the cylinder above, to which the wheels of the Gins are similarly attached.

One of the Gins is made to work either by the treadle, or by the machinery; and it is very far superior in every respect to the common foot Gin. As far as we are judges, it is altogether the greatest improvement on the Sea-Island Cotton Gin that we have seen. The moving power may be used with ease for other purposes, such as to work the threshing machine, for which purpose it is in extensive use by the Northern farmers.

The advantages of these Gins, are the following:—greater durability—less liability to get out of order—getting out more Cotton in a shorter time, and cleaner, than any previous invention. The trifling expense, and great ease with which they are propelled; the very small space occupied by the whole machinery; the prevention of all heat from friction, the Cotton does not "backlash" or wind and entangle itself round the rollers; all the parts subject to wear are of cast steel: they can be worked by the treadle or by horse power, at pleasure; the rollers can be taken out and replaced in one Gin, without interrupting the works of the others, and the ginner need not be detained more than two minutes while it is doing.

But the Planter need but visit it to be convinced of its important advantages over the Gins in common use on our plantations.—*Mercury 23d May.*

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The Buffalo Berry, or Shepherdia (argentia) from the Rocky Mountains.—Last autumn we procured of Judge Buel, three trees of the Buffalo berry; and this spring when they came into flower, we found that one plant is *staminate* and the other two *pistillate*. This discovery is very gratifying; for it is well known that like the Date Palm, none of these trees are expected to be productive unless both sexes grow in the same neighbourhood. Whether there is any way to propagate except by the seed, we have not been informed. Last year we tried *layers* on another plant which we had previously obtained; but none of them rooted. If it could be increased by some such mode, we could then be certain of having both kinds; and we should not be subjected to the risk of having only *one* sort when we procure *two* trees. If they can be readily increased only by seeds however, it will be well to purchase only such trees from the nurseries, as have had blossoms; and as these appear while the trees are small, this precaution will not be attended with much inconvenience. Ours are not five feet high.—*Gen. Far. May 2d.*

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The Osage Orange.—We have been informed that this fruit ripened the last season for the first time, east of the mountains. Our friend T. S. Pleasant has kindly supplied us with seeds from his trees at Beaverdam in Virginia; and we have now a number of plants which sprung from them in a hot-bed. They germinate freely.

This tree is also *diœcious*. We have a pistillate plant eight or nine feet high, which now appears to be preparing to blossom; but as this is the only tree of the sort in our possession, we cannot expect much fruit—which, however, is only to be prized as a curiosity, or as the means of propagation. Pistillate trees, indeed, sometimes produce hermaphrodite flowers, and consequently some fruit; but never in much quantity; and this exception to a general rule, seems only to be a provision of nature for preserving the species under extraordinary circumstances.

With *layers* of this tree we have always been unsuccessful; and equally so with *cuttings* of the branches, though we have succeeded with pieces of the root. Whether we shall hereafter become more skillful or not, is uncertain, but at present we are inclined to believe it can be most readily increased by the seeds.—*Ib.*

Tomato Catsup.—The Tomatoes, when fully ripe, should be bruised and boiled slowly for half an hour—then strained through a cloth, and the liquid boiled for another half hour, after adding salt and spices, but without any admixture of water. The scum should be carefully removed, so as to render the liquor as pure as possible. It should be bottled, and kept in a cool place. After it has stood a short time, should any sediment be discovered in the bottles, (and in order to know with certainty, *clear* glass bottles would be the best for this use,) the liquor should be poured off into other bottles. In this way, catsup of excellent quality —preferable, in my judgment, to that from Mushrooms, and clear as choice Madeira—can be readily made, in greater quantity and with less trouble than in the common way.—*Ib.*

Another Substitute for Coffee.—The seeds of grapes have been discovered to be an excellent substitute for coffee. When pressed they first produce a quantity of oil, and afterwards, when boiled, furnish a liquid similar to that produced from coffee. The practice has become very general throughout Germany.—*Far. and Mec.*

Strawberries.—The common strawberry is a natural dentrifice, and its juice without any preparation, dissolves tartarous incrustations on the teeth, makes the breath smell sweet and agreeable.—*Ib.*

To Destroy Caterpillars.—To fifteen gallons of water add one and a quarter pounds of common soap, the same quantity of flour of sulphur, and two pounds mushroons, (the poisonous kind.) Put the whole over a moderate fire and keep it stirring. Caterpillers, grubs, &c. watered with this liquor, immediately perish.

This receipt is said to come from Germany, where it has extraordinary success. —*Gen. Far.*

Valuable Cow.—A cow three years old, of the improved Durham short-horned breed, and her two calves, one eighteen, and the other nine months old, property of Mr. William L. Sutphin of this vicinity, were weighed on the scales in this village last week. The Cow weighed 1160; the calf eighteen months old, 850; and the one nine months old, 620. They have all been kept on grass during the summer, and the cow has produced one pound of butter per day for the last eight months. We think Mr. S. may safely challenge the county of Monmouth to beat him in raising cattle.

Query.—Would it not be more profitable for farmers to keep one or two such cows as the above, than eight or ten of the common kind.—*Monm. Enq.*

Preserving Fruits and Flowers.—Sir Robert Southwell gives the following method of preserving fruits and flowers throughout the year:—Take saltpetre, 1 pound; American bole, 2 pounds; clean common sand, 3 pound; and mix the whole well together. Then gather fruit, of any kind, that is not fully ripe, with the stalk to each, and put them one by one, into a wide-mouthed glass, laying them in good order. Tie over the top with an oil cloth, carry them into a dry cellar, and set the whole upon a bed of the prepared matter of 5 inches thick, in a box. Fill up the remainder of the box with the same preparation, and let it be 4 inches thick all over the top, and all around the sides Flowers are to be preserved in the same sort of glasses, and in the same manner; and they may be taken up, after a whole year as plump and as fine as when they were buried.

MONTHLY CALENDAR

OF

HORTICULTURE AND FLORICULTURE

FOR JUNE.

VEGETABLE GARDEN.

In this month there are but few vegetables that can be planted as a general crop; still, for a constant supply in our gardens around the city, it is advisable, to plant a few of each of the kinds enumerated last month.

Turnip.—A bed of Turnips may be sown this month as an experiment. There is a variety called the Red Top Turnip of recent introduction into England, which has this year succeeded better with us than any other kind. Seeds are to be obtained at our seed stores. These may be sowed broad-cast, and at first thinned to within three or four inches of each other; in the course of four or five weeks, you may begin to remove every alternate one for table use.

Snap Beans.—It is not yet too late to plant Bush or Snap Beans, to succeed those planted in former months; if the weather is very dry they may be covered 3 or 4 inches deep to keep up the moisture.

Beets, Carrots and Parsnips.—The seeds of these vegetables, although they do not come up freely during the heats of June, may be planted at this time. If they succeed, which they are likely to do if the beds are somewhat shaded, they will produce fine vegetables for the table in autumn. They are to be treated as directed in former months.

Musk and Watermelons.—You may yet venture, for a late crop, to plant seeds of these delightful fruits; they will come in at a time when most of our melons have disappeared from the market. This may also be done with Squash and Cucumber.

Green Corn.—You may continue every three or four weeks to plant corn, to be used as mutton or Green Corn. We have found that the Northern Flint Corn is more productive, and of quicker growth, than that of our own State. The seeds, however, require to be changed every two or three years. These seeds will come up several days earlier, if when about to be planted boiling water is poured over them, and suffered to cool; or let them be soaked a night in lye-water.

Cabbages.—The Cabbage Plants produced from seed sown in April, will now be fit for transplanting. Prepare a piece of ground in an open situation of your garden. Scatter over it a layer of about an inch thick of good rotten manure; dig it in evenly; then draw up the ground into small ridges or beds 6 or 7 inches high, and let the tops of them be flat; be careful that no gullies are left for the water to settle in, which would occasion the plants to be scalded and destroyed. The plants may be set from two to two and a half feet apart, according to their kinds.

Cauliflower and Broccoli.—You may, in the commencement of this month, sow a few seeds of these most delicious of all vegetables. If preserved through the heat of the summer which they are likely to be, when planted in a dry soil, they will head so early in autumn as not to be endangered by frosts.

Vegetables for Pickling.—This is a good time for planting Red Cabbages, the large Bush Beans, &c. for pickles. This will be a valuable acquisition to the table of every family.

Radishes.—You may sow a succession of Radishes every two weeks during this month. The Salmon Radish is to be preferred at this season.

Pull Onions, Garlick and Eschalots.—About the middle of this month the leaves of these vegetables will begin to wither. You may now take up the roots in a dry day, and pull off their leaves to within 4 or 5 inches of the bulb. Let them be laid on a dry scaffold to harden for about a week, where they may be frequently turned, when prepared in this manner they will keep through the summer in any dry situation in an out house.

Okra and Tomatoes.—Your Okra and Tomatoes will now require thinning and hoeing, and the latter being of a procumbent growth should be supported by sticks.

FRUIT GARDEN.

There is not much to be done in this Garden during this month. The suckers from the Peach and Nectarine trees may be removed by the hand. The worm which infests the root *(Aegeria exitiosa)* may now be easily found in the bark

around the surface of the earth, and may be removed by a sharp pen-knife, without injuring the growth of the tree. The fruit that has been perforated by the *Curculia*, should be removed and destroyed, for each of these contains a worm, which if suffered to remain unmolested, would soon crawl into the earth and undergo its transformations preparatory to its farther depredations.

The fruit of the Vine will now be in a state of growth. The young vines should be pruned with great care, leaving a sufficient quantity of wood for the next year's crop, for on this your success will depend; tie up your vines, remove decayed and superfluous leaves, cobwebs and the aiders of insects.

FLOWER DEPARTMENT.

There is little to be done in this department, but to water and trim off the rude branches of your plants, and to keep them carefully weeded. Gather seeds, set Cleomes, Chrysanthemums, and some of the species of Marigolds.

NATIVE PLANTS THAT BLOOMED IN MAY.

May is a month in which Flora presents her gayest smiles and sweetest fragrance. Our gardens, our fields, our woods, fill us with admiration at every step we go; and the songsters of the air contribute to welcome us to these lovely scenes. Who is not an admirer of nature in all her beauty and fragrance. The study of Botany appears almost essential to the enjoyment of the fields and the woods; without it we remain ignorant of the arrangement, and some of the most striking beauties of the works of God. In addition to the exotics, such as Roses, Pinks, Amaryllis', Dahlias, &c., which we have never seen more beautiful, than during the present spring, the native plants which have bloomed in May have been abundant and splendid. To enumerate them would require a page. Let all of us, then, who are interested in this subject, bestow a little attention to this department.—The intelligent and refined female will lose nothing by stealing an hour from the walks of fashion, and devoting it to this healthful and charming occupation.

ACKNOWLEDGEMENT.

We received a very gratifying letter from Joshua B. Brewer, Esq. dated "West Feliciana, (La.) April 27th, 1835," covering a remittance for one year's continuance of his subscription to the *Southern Agriculturist*. We thank him kindly for the high enconiums he has been pleased to pass upon our humble endeavours in the cause of agriculture, and to give him the assurance, that we shall continue with unabated zeal and perseverance, in a cause in which all conditions of men are so deeply interested; and which is the foundation upon which the wealth and happiness of our common country, and particularly the Southern portion of it rest. We thank him also, for the view which he has taken of this subject, enabling us to profit by his judicious hints, and to make our work increase in value to those who love the independent and vigorous life of an American Farmer.

Errata in our May Number.

Page 229, in the note, 2d liue from the bottom, "to them," should read *for* to them.
" 228, 17th line from the top, for "*these* changes," read *three* changes.
" ib. 15th line from the bottom, for "system of *Cowpens*," read system of *croppings*.
" 229, 5th line, dele "*thus*."
" ib. line 30th, insert "*have*."
" 232, 19th line from the top, for "*for* this," read *from* this.
" 233, 10th line from the bottom, for "*while* image," read while *the* image.
" 234, 6th line from the bottom, for "*yet*," read *Yes*.
" 235, 11th line from the bottom, for "*time* and solid comforts," read *true* and solid comforts.
" 236, 18th line, for "*as* profession," read as *a* profession.